

THE  
ARCHITECTURAL MAGAZINE.

---

APRIL, 1834.

---

ORIGINAL COMMUNICATIONS.

ART. I. *On the Means of forming a just and correct Taste in Architecture, and on the Sources from which the Principles of Design and Construction in that Art are derived.* By the CONDUCTOR.

WE have before stated (p. 5.) that no one who can reason, or who possesses what is called good common sense, need despair of acquiring a just and correct taste in architecture; and we shall now endeavour to point out the mode by which this may be effected. By a just taste, we mean one founded on sound general principles; and by a correct taste, one not only founded on general principles, but on the rules and precedents which regulate details of particular styles: for example, a person of just taste may duly appreciate the general form and proportions of a Corinthian portico, but his taste may not be sufficiently correct to enable him to decide whether the mouldings which have been employed in the columns and entablatures are those which are appropriate to that order.

A very slight consideration will convince every one, that, unless he has made any or subject his particular study, his taste or his opinions respecting that art or subject have been formed on the accidental circumstances by which he has been surrounded. A person living in a city can hardly help having some taste for architecture; that is, from continually seeing new buildings erected, he cannot avoid comparing them with those already existing, and probably judging them, in his own mind, to be either better or worse. Here, we will say, is an incipient taste for architecture, which, in a person whose mind is chiefly occupied with other subjects, may never advance a step farther. Let that person, however, be either a pupil to an architect, or a carpenter, mason, bricklayer, or any other mechanic employed in any of the trades connected with architecture, building, or furnishing, and the case will be found very different. Such a person cannot help advancing in his taste; or, in other words, forming more decided opinions as to what is good or bad, beautiful or the contrary, in the edifices or furniture which daily come before him, or in the construction of

which he is mechanically employed. Here, then, we have a taste for architecture growing up with a man insensibly, as a part of his profession or trade, and, we shall suppose, without his having had recourse to books, to travelling, or to any other of the usual sources of architectural knowledge.

We shall next enquire what chance this taste has of being just and correct. Here we may observe, that the terms just and correct, like all other terms, may be taken either in a relative and limited, or in an absolute and general, sense; and, from this view of these terms, we should decide that, though the taste formed on local circumstances, such as have been already described, may be just and correct relatively to what the person possessing it may have seen and studied in his given locality, yet that it may be very deficient with reference to the architecture of the world generally.

We shall first confine our enquiries to the subject of a *just taste in architecture*. There are few persons who have not made some particular subject their study more than any other; and such persons will be at once aware, that they could never have arrived at just opinions on that subject, without having reference to the opinions formed upon it by others in different times, and under different circumstances; in short, without having reference to historical and geographical, as well as merely to local or topographical, knowledge. The first step, therefore, towards a just taste in architecture is, to know what has been done in this art in all other ages and countries, and to be able to form some idea of its present state throughout the world.

If a taste for architecture were to be formed by any individual without reference to historical data, it could only be founded on the architecture of the particular country in which he was placed, and of the times in which he lived. The architecture of that age and country might be good, or it might be otherwise; but, whichever it was, the taste which was formed on it alone could never be considered as based on such a solid foundation, as that which was formed on a due consideration of all architecture, past and present. It might be a taste for Grecian architecture, for the pointed or Gothic style; or for the Indian, or the Chinese manners; and the conventional rules of the particular style, and their application, might be familiar to the individual. Supposing that individual, however, called upon to design a building which should have a character of grandeur and beauty, and yet not indicate any style whatever: such an individual would be totally at a loss how to proceed. And why would he be at a loss? Simply, because, though he was a master of rules, yet he was ignorant of general principles; to which, in architecture as in every thing else, recourse must be had in untried circumstances.

Let us suppose, for example, a carpenter living in London, and

naving no other means of improving his architectural taste, than observing with attention the public buildings and street houses of the metropolis. The general idea that would be impressed on his mind, would probably be the necessity of using columns, wherever it was intended to convey the idea of architectural distinction. He would find columns of large dimensions employed in the porticoes of churches and other public buildings; of smaller dimensions, in porticoes to private houses; and of still smaller dimensions, or reduced to half or three-quarter columns, in shop fronts. Again, he would see detached square columns, supporting porticoes; and portions of square columns, under the name of pilasters, attached to the walls of all kinds of buildings; sometimes appearing to be supports to an entablature, as in the case of a returned pilaster at an angle; and at other times merely as ornaments, as in the case of double pilasters at the angles, with the corner of the wall projecting between them. From all this he would naturally conclude that there could be no good architecture without columns or pilasters. Seeing columns applied to every building, of every dimension, sometimes supporting an entablature, and at others only bearing the semblance of doing so; sometimes detached and free, the portico serving as a protection from the weather to the area of entrance underneath; and at other times attached, and affording neither shade nor protection; sometimes with their bases placed on the ground, and reaching to the entablature which crowns the building; sometimes reaching only to the height of 10 or 12 ft., and appearing to support a superincumbent wall of great height, and of a weight sufficient to crush them to the ground, if it had no other support than what was afforded by them; and at other times with their pedestals or bases over a shop front, showing nothing but glass as a foundation—he would farther conclude that the manner in which columns or pilasters were applied was a matter of no consequence, and that the great object for him to aim at, was to contrive to introduce them on every occasion, when it was considered desirable to produce a superior description of building.

Now, supposing this carpenter turned architect or builder, and required to design a grand or elegant edifice, without being allowed to use either columns or pilasters, what would he do in such a case? He would, of course, be greatly at a loss, as, thus educated, he would have no idea of a grand or elegant building without these adjuncts. Suppose, however, that he ventured to compose a design, and that, after showing it to his employer, the latter should disapprove of it in point of taste; what arguments could he offer in its justification? It is clear that he could not refer to precedent, and also, that none of his rules would apply. If, therefore, he was without a knowledge of the fundamental principles of architectural composition, he would be totally lost.

We might proceed from the column to other parts of Grecian architecture, and show that a student, in similar circumstances, would have no better data on which to form his taste, with regard to the application of pediments, cornices, and other details. We might also suppose him living in any given city, where Grecian architecture was chiefly employed, at a time when some particular fashion in that architecture, as employed by the moderns, was prevalent; or when some great leading architect gave a tone to the public taste, and was everywhere imitated by artists in general employment. In either case he could only acquire a local or temporary taste, founded on what he had seen.

In like manner, we may suppose a carpenter, mason, or any other architectural student, living in a town where all the architecture was in the Gothic style, and that he was ignorant of every other; in this case he would be unable to separate the idea of grandeur and beauty from pointed arches, clustered columns, buttresses, pinnacles, and battlements. Ask him to design a building without these, and he would be equally at a loss with the architect whose ideas and rules were exclusively taken from examples in the Grecian style.

No one school, therefore, is sufficient to form a just taste in architecture. This can only be acquired by the comparison of different styles, and judging between them; and by separating what is peculiar or characteristic of each style, from what is general, and to be found in all styles. Thus far as to the mode of forming a just taste in architecture.

*A correct taste in architecture* always implies a reference to the details of some particular style. We could not properly speak of a correct taste in architecture generally; but it would be quite proper to speak of a just taste in that sense. A correct taste, being founded on details, is far more common than a just one; because it requires little more than an exertion of memory and recollection, in treasuring up and bringing forth the details of particular styles. There are many architects who excel in correctness in the particular style to which they have devoted their attention, who, if they were questioned as to general principles, would probably be unable to define one. A knowledge of details may be most readily and accurately acquired from engravings; but, for the practical man, most usefully by the admeasurement of the best examples. In either case, recourse must be had to historical and geographical knowledge, in order to determine what the best examples are.

Having shown that a just and correct taste for architecture, as a fine art, requires a knowledge of the architecture of all ages and countries, we shall next enquire whether a knowledge of the principles of architectural design and construction might not be attained by studying architecture historically. By the principles



of architectural design, without reference to any particular style, are to be understood those guides which direct the architect in adapting the interior of a building to the uses for which it is intended; and, in general, the fitness of all the means employed to the end proposed. By the principles of construction are understood those laws of geometry and of chemistry, on which depend the strength and durability of all buildings.

Now, to judge of the excellence of the *design* of a building, we must previously know its uses, in order to be able to estimate the skill by which the architect has contrived to adapt it to the purposes for which it was designed. As the uses of buildings vary in different countries, and in different ages, according to climate and civilisation, it is clear that no judgment can be formed of any given building, with regard to architectural design, without historical and geographical knowledge relatively to the uses of buildings.

A knowledge of the principles of *construction*, or, in other words, the science of building, certainly depends much less upon historical knowledge, than the departments of taste and design; but even here historical and geographical knowledge is of great use, by showing what has been done, and what has best stood the test of time.

It would appear, therefore, that the most natural, and consequently the most easy, mode of acquiring a just and correct taste in architecture, and of discovering the true or universal principles on which the art depends, will be to commence historically, and to examine as far as we are able, from books and other sources, the buildings of all ages and countries, in order to discover the general principles of architectural composition on which the effect of these buildings depends. It is in this way that we shall best be able to separate principles of general application from what are merely rules applicable to particular styles of architecture and states of society. On these general principles alone can be formed a just architectural taste, and to this must be joined a knowledge of the details of particular styles, to make that taste also a correct one.

---

ART. II. *A descriptive Account, accompanied by Plans, Elevations, and Sections, of Hungerford New Market, recently built from the Designs of Charles Fowler, Esq., Architect.* By Mr. J. ROBERTSON.

It is worthy of remark, that the advantages derivable from the concentration of business which takes place in markets, and the facilities which they afford to purchasers and venders, by giving to the former an opportunity of procuring commodities at the cheapest rate, and to the latter the convenience of more

readily disposing of their goods, should, until lately, have been appreciated in a greater degree in all the countries on the Continent than in Great Britain. Before the year 1829, London, though one of the largest and most opulent cities in Europe, could boast of no other accommodations of this kind, than those afforded by Covent Garden old market, Hungerford old market, Carnaby Market, St. James's Market, &c., all of which were in a most dilapidated state; while, on the Continent, markets of great antiquity are to be found, bearing the stamp of much care and expense having been bestowed on them. Till lately, Edinburgh was as badly situated with regard to markets as London. The metropolis of Scotland, however, took the lead of that of England in regard to the erection of new markets, or the revival of old ones. The first improvement in this respect, in Edinburgh, was the erection of the market-place underneath, and adjacent to, the North Bridge. From the central situation of this market between the old and new towns, it afforded every facility to purchasers from all quarters; but, as the city became enlarged, the inhabitants of the western parts of the town found the distance to the North Bridge Market to be too great, and this led to the erection of a splendid new market at Stock Bridge. In like manner, the south side of the town became more extended, and a third new market, similar to Portman Market in London, was erected for the accommodation of the inhabitants of that part. The principal market in Edinburgh, for grandeur and elegance, is that at Stock Bridge. The lower part of the building is appropriated to the sale of butchers' meat, poultry, fish, &c.; and the gallery is chiefly set apart for fruiterers' shops, though partly occupied as a bazaar, &c. This market is, however, far inferior in elegance and extent to the two now erected in London, from the designs, and under the inspection, of Mr. Fowler. Indeed, there are not in this country, or in any other, markets equal in elegance or appropriateness to Covent Garden and Hungerford new markets. This last market I am now about to describe.

In the reign of Charles II., the site of Hungerford market was occupied by the town-house and gardens of the Hungerford family, and thence called Hungerford Inn; which, with the numerous other mansions of the nobility and gentry then in the vicinity, formed very conspicuous embellishments to the northern banks of the river. Sir Edward Hungerford, then proprietor of this estate, was induced to convert it into a market-place; and, in the year 1679, a charter was granted empowering him to do so. The market was therefore established by this authority in the 31st year of Charles II. The privilege granted was for the sale of all sorts of commodities, with the exception of malt, meal, and grain. Subsequently, however, the property fell into the

joint possession of Sir Stephen Fox and Sir Christopher Wren; and, in the year 1685, or the 1st of James II., an act was passed, authorising the sale in the market of those commodities which were formerly restricted. From the last-mentioned proprietors the estate passed into the family of Mr. Wise; from whose descendants it has been purchased by the present company.

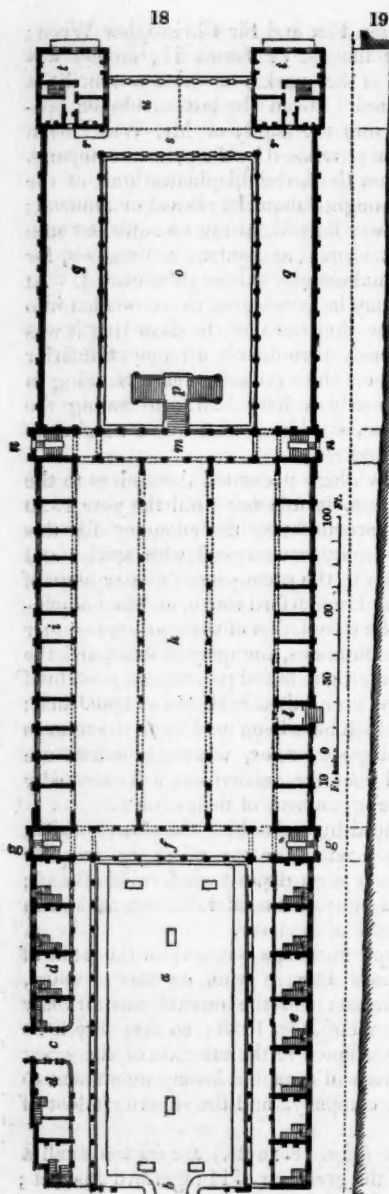
About ten or twelve years since, the dilapidated state of the old market led to serious thoughts about its revival or removal; and, in 1824-5, a company was formed, to raise a sufficient sum for substituting the present elegant and extensive premises, for those that were then only a nuisance to the neighbourhood. At this time, the old market may be considered to have fallen into disuse; and the few remains that were left to show that it was appropriated to such a purpose, were merely a range of inferior shops beneath a colonnade on the west side, and a building in the centre, which was formerly a lofty hall constituting the market-place, but, at this time, was subdivided into a number of tenements occupied as stabling, &c.

From the many difficulties which presented themselves to the revival of Hungerford Market, it was not until the year 1830 that an act was obtained incorporating the company for this purpose. It was then, however, commenced with spirit; and the embankments were begun in the same year. The expense of purchasing the ground of the Hungerford estate, and that adjoining, which was essential to the completion of the market, together with the cost of erecting the buildings, the quay in front, and the jetty for embarking and landing goods and passengers, amounted to 210,000*l.*; which sum has been raised in shares of 100*l.* each; and, from the calculations which have been made, and the returns already received, in the shape of rents, wharfage, warehouse dues, &c., it is considered that the subscribers will eventually realise a good return for the investment of their capital.

The works were commenced by embanking the shore, which, at this point, formed a deep recess, or bay, of a very irregular form, and was a place where a great deposit was formed of mud; the frontage is now carried out to a considerable extent, and in a line ranging with the current of the river.

The first stone of the new buildings was laid on the 18th of June, 1831, by the late Lord Dover; who, on this occasion, acted as Grand Master Mason; and the market was formally opened to the public on the 2d of July, 1833; so that very little more than two years were occupied in the erection of this great and magnificent work, which will remain a lasting monument to mark the enterprise of the company, and the superior talent of its distinguished architect.

The illustrative drawings (*figs.* 18. to 23.) are on too small a scale to convey a full idea of the grandeur of Hungerford Market;



but, while they are insufficient to show the powerful effect of this structure, when viewed from the river in connection with the adjacent buildings, having, when so viewed, the elegant spire of St. Martin's in the distance, they show the market in an architectural form; and the plans, sections, &c., furnish such information to the public, as they have not hitherto been supplied with. The accuracy of these illustrations may be depended on, as I was kindly favoured with the drawings, from which they were taken, from the portfolio of Mr. Fowler.

The peculiarities connected with the site of this market are, the difference between its great length and very limited breadth, and the unequal level of the ground, which falls with a considerable declivity to the river, as shown in section *fig. 19*. These two circumstances have, indeed, been made the most of; and the design is admirably adapted to its locality.

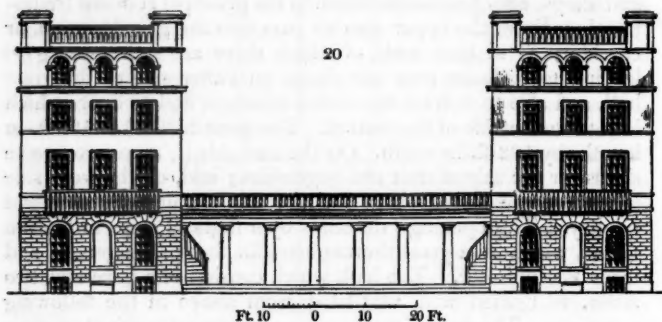
The buildings consist of two large quadrangles at either end of a most magnificent and spacious hall. *Fig. 18*. is the principal plan. The upper quadrangle (*a*) is approached from the Strand by New Hungerford

Street (*b*), which street is 163 ft. in length, and 30 ft. in width; and the arcade, which commences at *c*, forms a communication with Villiers Street, &c. The upper area of the market is 140 ft. by 70 ft. in the clear of the colonnades. On the east side (*d d*) there are six shops occupied by resident dealers in fruit and vegetables, &c.; over which are two stories of dwelling-houses connected with the shops beneath. On the west side (*e*) there are seven shops occupied by dealers in butcher's meat, poultry, butter, cheese, &c., which have also two stories of dwelling-houses over them, and two stories under, with an approach from Beacon Lane behind. These dwellings, houses, and shops, afford accommodation to the principal resident tradespeople. From the upper area we pass into the grand portico, or corridor, *f*; at both ends of which there are staircases (*g g*) leading to galleries over the shops on either side of the great hall, and also to stairs down to the cellarage, and to doors which lead to the outside of the market. The great hall (*h*) is 188 ft. in length, by 123 ft. in width. On the east side (*i*) there are twelve shops for the sale of fruit and vegetables; and, on the west side (*k*), there are eleven shops for the sale of butcher's meat and poultry. The opening *l* descends by a flight of steps to Craven Court, which is a great thoroughfare for foot-passengers to and from Westminster. The hall, which consists of a nave and two aisles, is lighted and ventilated from above in the following manner:—The roof of the centre compartment is raised on open arches above the roofs of the aisles, and these latter have likewise open intervals in the centre, thereby effectually securing sufficient light and ventilation. From the hall we proceed to the portico *m*, which, like the corresponding one at *f*, is separated from the hall by a screen of open arches. This corridor has also a staircase (*n*) at both ends, leading to galleries above, and to the fish-market and vaults below; and, underneath this portico, are counting-houses for the salesmen, &c., where the official business of the fish-market is transacted. Over each of the two last-mentioned staircases there is a prospect tower, which will be seen in the longitudinal section of the market. (*fig. 21.*) The level of the lower quadrangle (*o*) is a story below that of the hall and upper area, and therefore we descend, by spacious stairs, (*p*), to the fish-market, which latter is 120 ft. by 70 ft.; and on either side of which there are twelve compartments of shops exclusively devoted to the sale of fish. On the same level with the hall (*h*) and portico (*m*), there are the two galleries (*q q*) over the shops of the fish-market; and, at *r r*, there are small staircases descending to the latter, which are shown in the geometrical elevation of the river front. (*fig. 20.*) These galleries are intended to be appropriated on one side to the sale of grain, and on the other to that of flowers and shrubs in pots; there being a com-

munication from the one to the other by the terrace (s). The two wings (t t) are occupied as taverns, and connected by the balcony (u). The plan exhibits the first floor of the taverns, both of which are on the same level with, and have doors leading to, the galleries; and, on the ground floor, there are doors entering from the fish-market under the balcony.

The floors of the hall and lower quadrangle are occupied by stands for casual business; and, to mark the boundary of each, grooves are cut in the pavement, leaving proper avenues between the stands for passengers.

The river front (*fig. 20.*) consists of a central double colon-

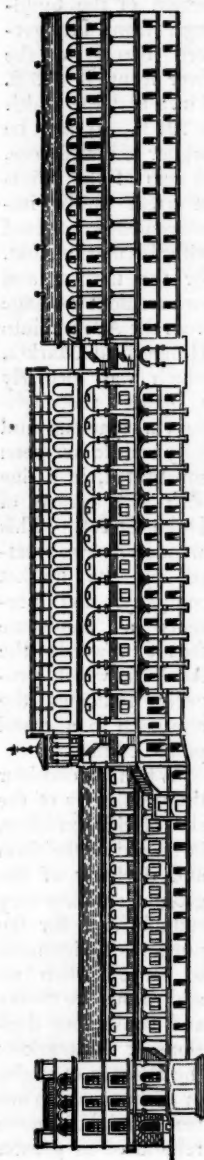


nade, over which there is a spacious terraced balcony, which is flanked on both sides by the two handsome taverns. The roofs of the latter are flat on the top, and floored with tiles and cement, supported by cast-iron bearers; thus forming a fire-proof and durable non-conducting roof, as well as a delightful terrace, whence the surrounding scenery may be viewed. The extensive wharf, or quay, between this elevation and the river, has a frontage of 220 ft.; from the centre of which an easy stair of granite (the risers of the steps being only 3 in.) descends to the jetty, or causeway; which latter extends 250 ft. into the river, for the accommodation of embarking and landing goods and passengers.

The longitudinal section (*fig. 21.*) shows the two ranges of vaulted cellars under the upper area and hall; one story of cellars under the fish-market; and the gallery over the shops of the hall. This gallery is now being fitted up with a boarded ceiling, and a range of counters, having a walk in front, for the display of fancy articles in the manner of a bazaar. The cellars have separate entrances from different points on the outside of the building, so that they may be rented separately from the shops over them; and the cellars on the east side are at present let as shops and warehouses to bottle merchants, &c. In this



21



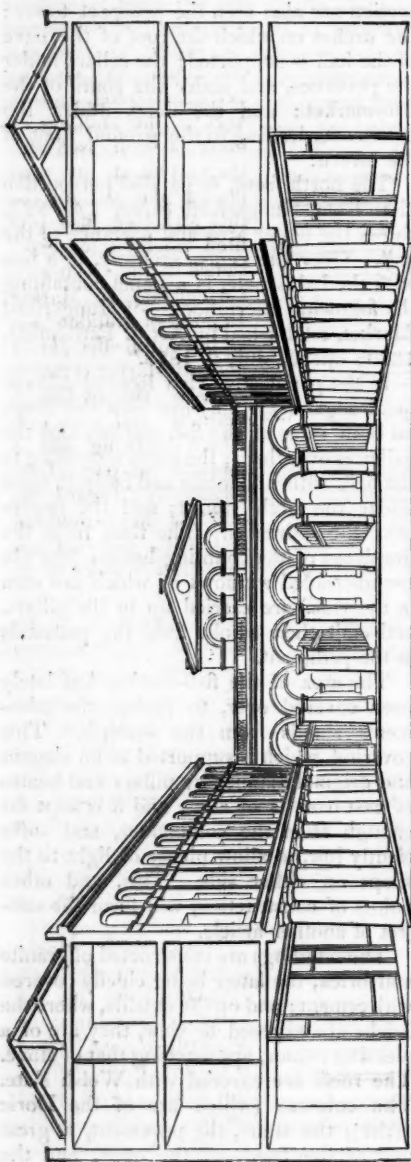
section are also seen the prospect tower; the arches on which the roof of the nave of the hall is supported; the cellars under the porticoes, and under the stairs of the fish-market; and the door, under the colonnade, leading to the ground floor of the tavern.

The north front, or parallel perspective view from Hungerford Street (*fig. 22.*), shows the upper area and entrance to the hall. Over the centre archway, in a line with the balustrade, is a panel containing the following inscription:—"Hungerford Market, established by Act of Parliament, 1830; opened July 2. 1833."

In the perspective view from the lower quadrangle (*fig. 23.*) are seen the shops on both sides of the fish-market, and the galleries over them; the stairs ascending to the hall, with a fountain and basin in front under the arch stones; and the towers over the staircases. The flues from the fireplaces of the counting-houses (the six round-headed windows of which are seen in the view) are carried up in the pillars, and emit their smoke from the pedestals in the pediment.

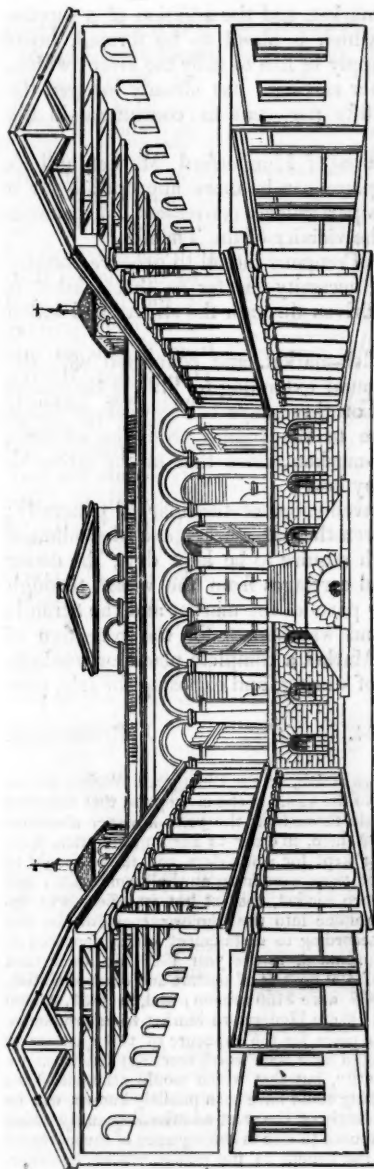
The area of the fish-market has lately been covered over, to protect the salesmen's stands from the weather. This covering, which is supported in an elegant and original manner by pillars and beams of cast iron, is of zinc; and it is kept far enough from the colonnades, and sufficiently low, to allow plenty of light to the shops on either side. This, and other points of construction, will form the subject of another article.

The buildings are constructed of granite and brick, the latter being chiefly covered with cement; and on the outside, where the bricks are exposed to view, they are of a pleasing colour, approaching that of stone. The roofs are covered with Welsh slate. The columns (which are of the Doric order), the stairs, the pavement, a great part of the frontage, the quay, and the water-stairs, are all of granite. The whole



length of the buildings, from Hungerford Street to the river front, is 475 ft. 6 in.; and the width is 126 ft. It may be proper to notice here, as one of the points of great public improvement connected with this market, that, for the narrow and inconvenient passage from the Adelphi into Hungerford Market, which was formerly a great thoroughfare, a spacious and lofty arcade has been substituted, in a line with the centre of Duke Street. This arcade was also erected by the market company, and presents a handsome façade towards the Adelphi, which properly indicates the approach to a grand public edifice.

When we consider the peculiarity of the site of this building, in regard to the form and declivity of the ground, and how very suitable it is for the purposes it is intended to serve; when we add to this the roomy and convenient divisions of the market; the absence of angles or corners, where one vender might be more remote or in greater



obscurity than another; and last, though not least, the light, yet solid and substantial, the elegant, yet unassuming, appearance of the building; it must be confessed that the architect, in composing the designs for this structure, has profited much by his experience in the erection of Covent Garden Market. In point of grandeur and architectural effect, Hungerford Market certainly surpasses that of Covent Garden; and, even were I bent on being critical, there is no part of the former, as it regards the building, that I could find fault with, unless it might be, that the stairs at the extremities of the porticoes appear to me too narrow, and that, from the flues of the taverns being in the external walls, I think heat must be lost, and there must be a risk of the chimneys not drawing so well as they otherwise might do. I also object to the fire-places in the bars being close to the entrance doors.

Hungerford Market possesses important advantages, from the convenience, cleanliness, and salubrity arising from its situation on the banks of the river. From the removal of old London bridge, the extent of the

causeway in front of the market, and the addition of a supplemental floating causeway, which is about to be formed, boats can at any tide convey a supply of fish to it by the river; which, from the cheapness of water carriage, has already lowered the price of this commodity fifty per cent to consumers in the western parts of the town.\*

From the central situation of Hungerford Market, and its contiguity to the river, no place can be more appropriate for a vegetable market; and it is particularly convenient for growers of garden commodities in the vicinity of the Thames.

The Hungerford Market Company intend to procure country killed meat, to set aside the necessity (as far as that market is concerned) of cattle being driven through the streets and killed in town.

On the east side of the fish-market, and connected with the wharf, is a large plot of ground extending to Villiers Street, on which a hay-market is held on three days of the week, which is found a great convenience to the public, from the extreme remoteness of all other hay-markets, since that in the street so named has been abolished by law.

The great extent and conveniences of the market generally; the proper distinction between the fish-market and that allotted for other commodities which require to be kept dry; the direct communication for carts and carriages from the wharf, through Villiers Street, to the upper parts of the market and the Strand; and the extensive vaults and warehouses for the reception of goods, render Hungerford Market a complete place for conducting the important business of storing, and exposing for sale, provisions for a vast public.

*Bayswater, March 6. 1834.*

J. ROBERTSON.

\* So completely had the dealers in fish, of the Billingsgate Market, monopolised the supply of that article to the whole of the metropolis, that the price of fish of good quality differed little throughout the year, however abundant might be the supply. The fish withheld, in order to keep up the price, were either thrown into the Thames, or kept for some days, and then brought to market. In the last case, many of them were in an unwholesome state; and to such an extent was this practice carried, that at last an officer was appointed by the lord mayor to examine into the wholesomeness of the fish exposed for sale. This officer (according to a statement which appeared in the *Times*, in March, 1834), condemned, in the year 1833, no fewer than 190,748 fish; besides upwards of 500 bushels of oysters and other shell-fish. Among the fish condemned in 1832 were 2150 salmon; and, in 1833, 38,300 soles, 1963 cod, and 676 turbot! Were Hungerford Market to be productive of no other good than affording a place for the exposure of this quantity of fish for sale in a fresh state, it would have been worth erecting; but when we consider that not only this quantity, but that which would otherwise have been thrown away, of which nothing could have been publicly known, will be brought into the market, independently of the great additional quantity which will be caught in the seas, and exposed to sale in consequence of the increased demand, it must be evident that the benefit to the public will be immense.

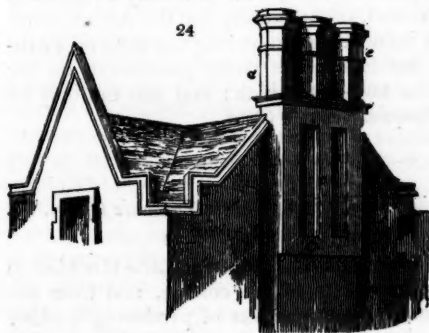
ART. III. Notice of a very common Error in designing and building Ornamental Chimney Tops. By E. B. LAMB, Esq. Architect.

Sir,

IN your *Encyclopædia of Architecture*, you have very properly pointed out the difference between the bold and free style of the master, and the tame servile manner of the mere imitator. Nothing is more common in architecture than to copy without understanding the original; and this is always more evident when copyists either add to, or take something from, the object imitated. I could refer to innumerable instances of this; but I shall content myself at present with a very simple one. Builders, in common with others, seem now agreed that it is very desirable to render chimney tops ornamental; more especially in cottages, villas, and other suburban dwellings. In constructing these ornamental chimney tops, however, they generally contrive either to curtail them of their fair proportions, or to omit some member; so as, instead of pleasing, to raise up in the mind of the architect, or amateur, who knows what they ought to be, only feelings of regret and disappointment.

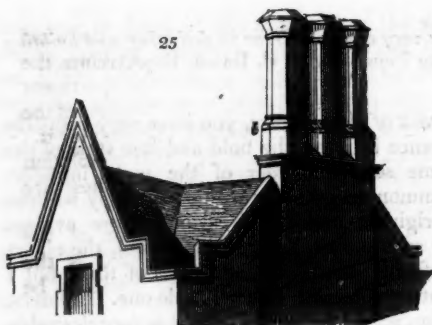
I shall give you an example of this from a villa in the Elizabethan style, just completed, not above a mile from town; premising, that I have not the least idea, either of the name of the architect, or of the builder. I confine my remarks entirely to the chimney tops.

*Fig. 24.* is a view of a stack exactly as it is, and *fig. 25.* a view of the stack as, I think, it ought to have appeared. You will



observe, in *fig. 24.*, that the shafts (*a*) are short and inelegant, and that the plinth and base mouldings, which I have shown in *fig. 25.*, at *b*, are entirely omitted. Instead of this, in *fig. 24.* there are two panels, shown at *c*, and a sort of cornice, or row of blockings,

Indeed, the price of fish, in a short time, will probably not exceed one third, or even one fourth, of what it was in 1832. By the breaking down of this monopoly, another lesson will be added to those already lately given to dealers and tradesmen; viz., that the system of insuring, by small profits, extensive sales, is the only one adapted to the present advanced state of society in this country.—*Cond.*



under, which are evidently formed for the sake of ornament; since, so far from being of any use, the panels, by diminishing the thickness of the wall, must have a tendency to render the flues more easily penetrated by the cold, and, consequently, to injure their draught. The

form I have shown would not have required a greater expense of labour and material than has been incurred by building this cornice, and sinking these panels. Allow me also to point out the bad arrangement and scattered appearance of the cap in *fig. 24.*: the neck (*c*), under the cap, is much too long for the body of the shaft.

With sincere good wishes for the success of the Architectural Magazine,

I am, Sir, yours, &c.

E. B. LAMB.

9, Little James Street, Bedford Row, Dec. 29. 1833.

WE consider the above short communication as particularly valuable in a practical point of view; since it is only by pointing out little matters of this sort, one at a time, that the Architectural Magazine can have an influence in improving the taste of established architects and builders. The rising generation, on the contrary, require to be taught to think; and this can only be effected by scientific disquisitions. — *Cond.*

---

ART. IV. *On the Ventilation of Living-Rooms, Domestic Offices, &c.*  
By JOHN MILNE, Esq., Architect.

No subject of equal importance has been so little attended to as ventilation. From the pigsty to the cottage, and from the cottage to the palace, we find the means of producing it either entirely neglected or mismanaged.

In some instances, no doubt, this essential has been attended to. The subject was scientifically considered by Tredgold, in his *Principles of Warming and Ventilating*; and, accordingly, many persons have been induced to endeavour to ventilate their dwellings; but the methods employed are exceedingly defective.



It is conceived by projectors in this way, that whatever is a good ventilator to-day will be such to-morrow; whether the wind blows in this direction or in that, in at the door or down the chimney; whether it be winter or summer; whether the apartment be warm or cold. A passage at the top, or else at the bottom, of the house, for the exit of vitiated air, is all they think of doing for it.

On the contrary, it should be borne in mind, that ventilation depends upon two exciting causes; and that, whether these are in an active state or not, ventilation is necessary.

The first of these causes is the force and direction of the wind, without reference to temperature. The second is the difference of temperature within and without the house to be ventilated.

When the wind blows hard, it forces its way into the house by every chink, and thereby forces out the air within it: but when the direction of the wind is against the door, the blast beats in whenever that passage is opened; and, according as the weather is mild or violent without, it is sufferable or otherwise within. An opening in the roof tends very much to increase the disagreeableness of this sort of ventilation, and to insure the visiter a severe cold, if not an attack of inflammation.

The second cause of ventilation is the greater temperature within than without the house; and, according as the difference is great or small, ventilation is quick or sluggish.

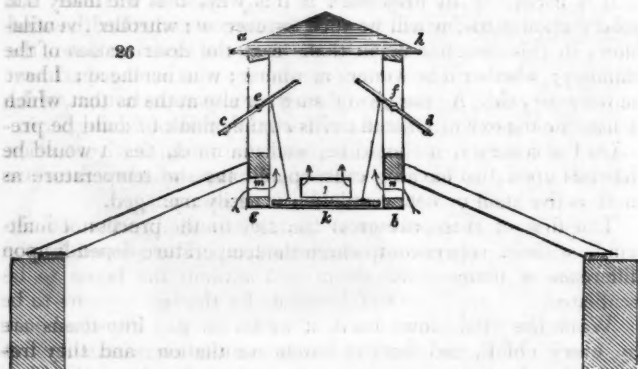
Almost everybody knows that warm air is lighter than cold air; and we, by experiment, find that any given volume of air decreases in weight  $\frac{1}{83}$  part by every additional degree of heat. Hence, warming an apartment occasions the mass of air which it contains to become buoyant, and it would soon escape, were there an opening to allow its exit.

Now, an opening in the roof must be made, in order to permit the escape of vitiated air, and it ought to be such a one as to permit a sufficient exit of air in summer, when the difference of temperature within and without the house is small, and consequently when the ventilating current is sluggish; and it must also be just large enough to permit the escape of the same quantity of air in winter, when the difference of temperature within and without the house is great, and consequently when the ventilating current is quick: conditions which are evidently impossible, unless the ventilator can be made to open its throat in summer, and shut it in winter, just as much as is necessary.

I shall now describe a ventilator having these properties. In *fig. 26.*, let *a b* be a square crib, frame, or box, placed on the roof, having two doors, *c* and *d*, hung on centres at *e* and *f*.

If we can open and shut these doors according to the degree of ventilation required, our object is attained.

In order to effect this, let the end *g b* of the crib project



below the roof, leaving air passages, *m*, *n*, *p*, &c., between its bottom and the roof; and let the bottom of the crib be open towards the inside of the house, except in so far as it is partially closed by the damper *k*. This damper is attached to the doors *c* and *d* by pieces of cord, light wood, or iron hoops, and its weight is just sufficient to open the doors to the full extent required. Now, it is evident that a very small force of air at the under side of the damper *k* would push it upwards, and thereby shut the doors *c* and *d*; and, by pushing up the damper *k*, the passage of the air by the openings *m*, *n*, *p*, &c., is prevented: but the passages *m*, *n*, *p*, &c., and the doors *c* and *d*, can never be closed completely, because, by closing the doors *c* and *d* to a certain extent, the exit of the air is prevented accordingly, and it thereby prevents the damper *k* from rising any farther; that is, the air presses upon the upper side of the damper, and upon its under side, with nearly equal force.

Now, the quantity of air we may want to let out will be regulated by the excess of the weight of the damper over the balancing weight at the outer ends of the doors *c* and *d*, and this weight we can add to, or take away, as we please. I have now shown that this ventilator will regulate and equalise the exit of air. It will also regulate and equalise the entrance of air into the apartment ventilated. If not, the house must be so open that it is needless to attach a ventilator to it.

Suppose that a stiff breeze blows against the door of an apartment, and that the door is opened whilst the people within are warm; the wind rushes in, compresses the air within the house, and thereby closes the damper till the ventilation goes on precisely at the same rate as before. This ventilator, therefore, is more careful and efficient than the best doorkeeper could be.

In stables and cow-houses, proper ventilation is as necessary

as in palaces. I shall not enter into any detail of the many bad effects upon cattle, which want of, or even uncontrolled, ventilation gives rise to; nor describe the extent of deterioration of the buildings, where there is none, or where it is ill managed; I have only to say, that, by the use of such an apparatus as that which I have now described, all the evils complained of would be prevented at a very small expense; and that in dairies it would be particularly valuable, as, by its operations, the temperature as well as the quality of the air could be easily managed.

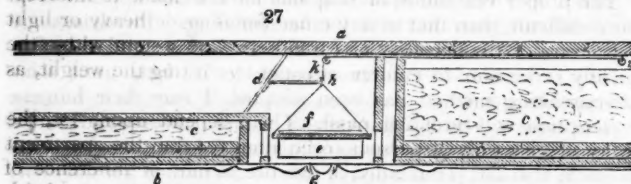
It appears also to offer great facilities to the process of malting, and similar operations, where the temperature depends upon the draught of air.

The proper ventilation of hospitals for the sick appears to be more difficult than that of any other building. Physicians are well aware of the necessity of careful ventilation; and they frequently endeavour to enforce attention to it: but, until some self-regulating method has been adopted, I fear their humane prescriptions will be of little avail. The more irksome and painful duties which a sick-nurse has to encounter, frequently exhaust her so much, that she is reminded of this occult part of her duty only by her own sensations of heat, cold, or offensive effluvia. This is wrong; and the means of obtaining ventilation which she has in her power are no less objectionable. The windows and chimney are the only ventilators within the house, and these may be, and frequently are, opened just as much when the difference of temperature within and without the house is great, as when it is scarcely perceptible. Even although there were an appropriated opening in the roof, or in any other place, for the escape of air; if it were a mere opening only, it could neither regulate the exit nor the supply. On the contrary, as it has been already noticed, whatever shall regulate the exit, must also regulate the entrance, of the air, and *vice versâ*. Now, were there a spare flue near the apartment to be ventilated, it would not be expensive to attach an equalising ventilator to it; but, as something more must be done to increase draught at all times, I shall not describe this method farther than to point out its defects. In winter ventilation could be easily obtained, but in summer it could not; and that is the time at which it is most wanted. In the warm season, it frequently happens that the heat without is as great as that within the house, and that the atmosphere is in a quiescent state: under these circumstances, little, if any, ventilation could be obtained by a spare flue. The same objection is applicable to all contrivances in which pipes or openings within the house are employed. But were the spare flue or pipe contrived in such a way as that it might be kept hot by the kitchen furnace, or other constant fire, it would be the very best promoter of ventilation that could be thought of; and, where that

was unattainable, pipes upon the warmest part of the building might be employed. The longer the draught pipe is made, the stronger will be the draught.

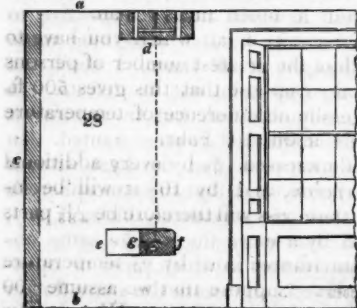
I shall now show how the ventilating current is to be regulated in hospitals and other buildings, by the use of a ventilator such as that which I have already described. The ventilator may be placed either between the ceiling and the floor, or in the side walls; but, in either case, the ventilating or exit passages, flues, or pipes, should be carried high above the room to be ventilated, otherwise the draught will not be sufficiently strong.

In *fig. 27.*, *a* is the floor of the apartment above; *b*, the ceiling of the room below; *c*, deafening; *d*, door; *e e*, air passages;



*f*, damper. The ventilator is understood to be in the middle of the apartment to be ventilated; and, of course, the air passage must be between two of the joists, and made to communicate with a flue or pipe appropriated to and warmed for it. No part of the apparatus is seen from below; the opening at *g* being covered by the usual ornamental patera (a flat vase; now applied to a rose-like ornament, used in floors and ceilings, to cover openings), in plaster, wood, or composition. To insure the performance of this ventilator, according to the quantity of ventilation required, the damper should be partly suspended by a cord, *h i*, which passes over one pulley at *k*, and

another beyond (*i*) at the junction of the ceiling with the side walls, and is thence carried over, and connected with a lever and weight, in the way shown in *fig. 28*. In this figure, *a* is the ceiling, and *b* the floor, of the room to be ventilated; *c* is a cross wall. The ventilator may be placed either in the side or end walls. Nothing is seen within, except the opening at *d*, and the shutter *e*, which opens into a small cavity in the wall, in which a lever and weight are made to regulate the quantity of ventilation, by placing the weight *f*



nearer or farther from the fulcrum of the lever *g*, which is attached to the bottom of the damper in this instance, as it was in *fig. 26.* to its top.

The mansions of the opulent ought to be carefully ventilated; nevertheless, even in them, ventilation is often very ill attended to. In some instances the opening is made in the top of the cupola of the staircase; and certainly there is no situation better adapted for it, were it not that smoke and soot find their entrance when ventilation happens to be suspended.

Now, instead of making the exit passage in the cupola, I make ornamental openings in the plaster there, and connect these with a garret, in which the equalising ventilator is made to intercept the ventilating current; and the damper is made heavy or light at pleasure, by connecting it with its lever and weight within the parlour or vestibule of the house, and by shifting the weight, as already explained.

The area of ventilating passages will depend upon, 1st, the maximum number of persons to be admitted into the apartment to be ventilated; and, 2dly, upon the minimum difference of temperature within and without the house, at which we wish ventilation to be perfect.

According to Tredgold, "a man makes 20 respirations in a minute, and draws in and expels 40 in. of air at each respiration; consequently, the total quantity contaminated in one minute by passing through the lungs, is 800 cubic inches." (*On Warming and Ventilating Buildings*, p. 69.) Mr. Tredgold, when he wrote this, had evidently not been aware of the experiments made by Pepys and Allen. In their *Essay on Respiration*, they state that an easy inspiration is about 16 cubic in.; and that the subject of their experiments made about 19 of these per minute; which gives 304 cubic in. only per minute; call it a quarter of a foot. A candle is known to deteriorate as much air as a man.

Take, as the number of cubic feet of air which you have to change in a minute, one fourth of the greatest number of persons to be admitted into the room. Suppose that this gives 500 ft. of air; and assume that the minimum difference of temperature within and without the house is about 10° Fahr.

Since the volume of air is increased  $\frac{1}{83}$  by every additional degree of heat (*Dalton's Experiments*); by 10° it will be increased  $\frac{10}{83}$  parts; and the heated mass will therefore be  $\frac{10}{83}$  parts lighter than the air without the house.

The weight without will be affected both by its temperature and the scale of the barometer. Suppose that we assume 500 grains as being the weight of a cubic foot of air. We are now near finding the rate of ventilation; for the velocity of the current will be according to the force or buoyancy of the heated

mass, and that will be the difference of weight of any equal bulk of air within and without the house.

Now, we have already assumed the fraction  $\frac{1}{483}$  as the difference of volume and weight between the heated and cold air; from which we obtain  $\frac{500 \times 10}{483} = 10.3$  grains, or thereabouts, of a force, per foot superficial, to put our ventilating column of air in motion.

But, from anemometrical experiments, we know that this force would give a velocity of ventilation of about 4.5 ft. only per minute, which velocity being made a divisor of the mass, 500 cubic feet of vitiated air, we have 177 ft. superficial for the area of our ventilating passages: an exceedingly large opening, certainly; but which will be much less when all circumstances are taken into account.

In order to show the utility of ventilating tubes, or flues, especially rarefying ones, I purposely omitted, in my calculation, the important fact, that they accelerate greatly the velocity of the current.

In estimating the effects to be expected from these tubes, we must not take, as I have done, the difference of weight of a cubic foot of air within and without the house, as the moving force or measure of the rate of ventilation. Instead of that, we must compare the weight of a column without, with the weight of one within the house; and the altitude of these must be equal to the height of the top of the ventilating tube above the floor of the room to be ventilated.

Now, were the top of the ventilating tube 40 ft. above the floor of the house, it is evident that, instead of the buoyant force of the warm air within being 10.3 grains only, as we had it before, it would be 40 times greater, or about 412 grains; and, accordingly, that our ventilating passages might be  $\frac{1}{40}$  of what they were by the last calculation; that is, their areas might be made about 3.8 ft. superficial, instead of 777 ft.; and that such a ventilator would ventilate sufficiently 2000 persons, at a time when it is most difficult of attainment.

Tredgold has given excellent formulæ for every thing connected with this subject. I have treated it only in such a way as to make it understood by the generality of readers.

7. Hunter Square, Edinburgh,  
March 19. 1833.

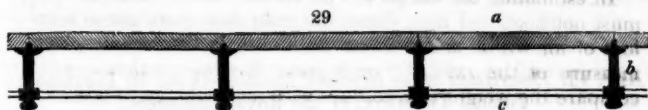
JOHN MILNE.

We consider this article a most important one, and wish much that some architect, building a dairy, or a malt-kiln, would give a trial to the very ingenious plan indicated in *fig. 26.*, and let us know the result. Mr. Milne, we have no doubt, on being written to, would engage a proper person to make a small model under his own inspection, which would remove all difficulties in regard to execution.—*Cond.*



ART. V. *On the Use of Cast Iron and Caithness Flagstone in the Construction of Fireproof Floors and Partition Walls in Dwelling-Houses.* By J. R. of Edinburgh.

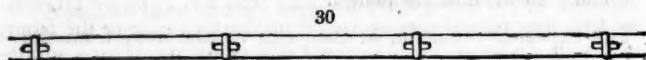
THE expected reduction in the price of cast iron, from the recent improvements which have been made in the manufacture of it, will, no doubt, lead to great improvements in the construction of houses, and will render them fireproof, to a certain degree, with very little apparent change of appearance. Even at the present price of iron, much might be done by iron joisting, laid 2 ft. or 30 in. asunder, and covered with Caithness flags, the flattest, the hardest, and the most tenacious of this class of stones. They are incapable of being cut by masons' irons, but they saw easily; and, being truly flat by nature, they require no farther dressing than being sawn square. They are found of all thicknesses, from a quarter of an inch to  $3\frac{1}{2}$  in., and are so strong at 2 in. thick, that no accident which can occur, in ordinary cases, could injure a square of thirty inches, or even three feet. If, therefore, joists of iron, as shown in section *fig.* 29. (in which *a* is the line of flagstones forming the floor;



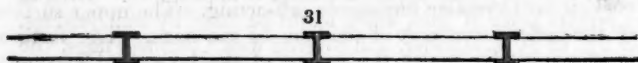
*b* the cast-iron joists; and *c* the wrought-iron rod for stiffening them), were covered with these flags, a substantial fireproof floor might be made, of any extent. In many cases, the natural surface of the stone may do; but, in conspicuous places, where neither carpet nor oilcloth is laid down, the slabs may be polished by rubbing one against another, and, when finished in this way and oiled, they look as well as Tournay marble. I have heated a portion red hot, and quenched it in water, without its cracking, or appearing to lose its peculiar tenacity. This stone might be easily got to London, as ballast, in the fishing vessels from the North, where it is prepared of such thickness and sizes as may be ordered, the joints ready sawed half way through, with the rough edge left on, to protect the sharp angle. I cannot help thinking that, if its valuable properties were known to the London builders, they would employ it largely in their works, as there are so many purposes to which it is applicable. Nothing can make better pavement; as, from its impenetrability by water, dirt never adheres to it, and, whether in rainy or in dry weather, it is always clean.

A method of making thin fireproof partitions with it, or with Arbroath stone, has occurred to me, which you may examine.

Suppose a set of upright iron standards, like *aa* or *bb*, in the horizontal section (*fig. 30.* and *fig. 31.*), were erected, and stone



slabs, grooved or plain (according to circumstances), were dropped into the spaces, a very firm partition might be built up, without re-



quiring any fastening, except the top course, where, of necessity, there could be no feather or ledge, as all the stones would have to be let in there. Other and better forms would probably occur on further consideration. The corrugated iron, shown in sections 355. and 356. of your *Encyc. of Arch.* may often be used in this way, and likewise in stairs; where, if the riser were of iron and the step of Caithness or Arbroath flagstone, a light, stiff, and pleasant stair might be constructed, completely fireproof.

J. R.

ART. VI. *Description of an improved Roasting-Oven.* By Lieutenant-Colonel THOMSON, of the Royal Engineers.

Sir,

I HAVE perused your *Encyclopædia of Cottage Architecture* with great pleasure. It is a book which has long been wanted. What would I not have given for such a book when I first started in life? Even now, at the eleventh hour, I am delighted with it. I regret that I was not in England at the time your work was in progress. If I had, I should have sent you one or two designs for small cottages, which I have been in the habit of thinking nearly perfect of their kind. One of them was very similar, in its general plan, to Sir Robert Taylor's beautiful villa at Richmond, only on a smaller scale. [We shall be glad to receive these plans from Colonel Thomson, in order to publish them in this Magazine.]

This, however, is foreign to my present purpose. What I mean now to touch upon is an improvement on the roasting-oven, for which you have given some hints in your *Encyclopædia*, p. 722. By the plan which I propose, a roasting-oven of 3 ft. by 2 ft. 6 in. internal dimensions, with two or three confectioner's stoves, and one or two charcoal stoves, would be sufficient fitting for the kitchen of any small private family; and the whole expense would be covered in the saving on coals in about two or three years. I would send you a plan and section; but want of

time prevents me at present. The following description of the oven, however, may suffice.

The boiler is made of plate or cast iron 2 ft. 7½ in. by 1 ft. 9 in. by 1 ft., having an opening into it on the top, near to the front, of 6 in. in diameter, for cleaning it out, or for receiving a steaming vessel for cooking vegetables, &c., in front of the oven door. There are a cock to draw off boiling water, and a pipe to supply cold water from a small cistern on the same level, with a ball cock, so as to render the supply self-acting. The upper surface of the boiler forms part of the floor of the oven. The furnace is placed nearly under the centre of the boiler. The smoke flues open from it by two slits 6 in. by 1½ in. each, gradually widening to 4½ in. by 6 in. on the level of the seventh and eighth courses of bricks. These flues proceed horizontally, branching off to the right and left, until they clear the back of the oven: there they rise to the level of the eleventh and twelfth courses, passing on each side of the oven, and separated from it by a paving tile on edge, until they reach within 4½ in. of the front, on each side of the cast-iron frame of the oven door, which is placed on the boiler, the frame having no sill. Here the smoke-flues again rise; and they ultimately join in one flue, 9 in. by 4½ in. over the centre of the door, where a damper is fixed. The opening to the furnace, 6 in. by 5 in., is formed into an inclined plane of one in three. It has no door, but is fitted with a wrought-iron spout, which also acts as a stopper, having a double back and a handle. The hot-air flue enters from the ash-pit, immediately under the bearing-bar, and proceeds horizontally on the level of the third and fourth courses until it clears the back of the oven. Here it rises perpendicularly until it reaches the fourteenth course, where it branches to the right and left, immediately over the smoke-flues, and separated from them by a tile; the joints between the tiles being protected by a piece of slate, to prevent any smoke from rising into the air-flues. These air-flues proceed horizontally until they reach the sides of the oven near the door, where they are admitted into the oven by openings 4 in. by 2 in. each, on the level of the springing of the arch. The hot air exits at the back of the oven through an opening 4 in. by 3 in., close under the soffit of the arch at the crown. Thence it may be carried up into a drying-closet, or the hot air may be made available for any other useful purpose. Be it observed, that the arch springs from the 3-ft. sides; the back and the front being carried up perpendicularly. The entrance into the ash-pit may be closed either partially or wholly by a brick stopper, 8 in. by 6 in. by 4 in.

By this mode of construction, the internal part of the oven is kept perfectly clean; since the smoke never enters it. But when the gross particles of the coals have been carried off by

the smoke-flues, and the fire burns bright and clear, the action of the furnace may be reversed, by pushing in the damper of the smoke-flue and the stopper of the ash-pit. By these means nearly the whole of the heat of the flue will be carried into the internal part of the oven, through the hot-air flues.

The contents of the oven, which I have just described, are 165 cubic feet, which, at 1*s.* 2*d.*, will give 9*l.* 12*s.* 6*d.* as the whole expense.

If you should deem these details likely to be useful, they are very much at your service. My object is general utility; and I know of no subject which will contribute so largely to the comfort and happiness of Englishmen all over the world, as a practical improvement in this branch of domestic economy, which may have the effect of overcoming, in some degree, that rooted prejudice in favour of long open kitchen-ranges, which roast the poor cook as well as the meat, and consume as much coals in one day as would do the work of ten in properly constructed furnaces. Wishing you every success in your useful career,

I am, Sir, yours, &c.

Cape Town, Cape of Good Hope,  
Oct. 3. 1833.

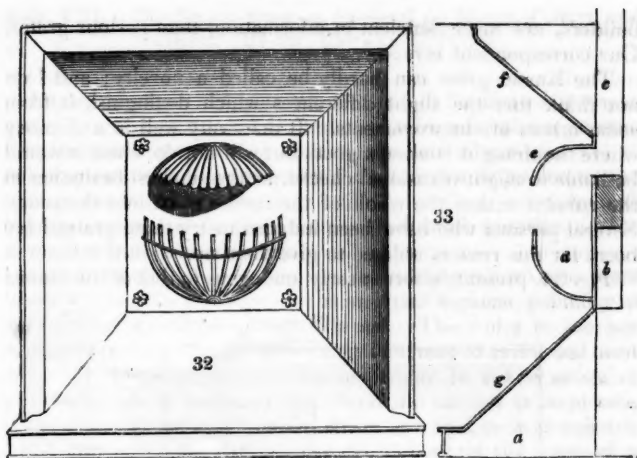
ROBERT THOMSON.

ART. VII. *Descriptive Notice of the Russel Stove*; communicated by MESSRS. J. SIBBALD and SONS of Edinburgh: with *Remarks on this Stove*, by a Correspondent resident in that City.

Sir,

AT your request, we send you herewith a view and section (figs. 32, 33.) of what we call the Russel grate, from the idea having been suggested to us by John Russel, Esq., Lecturer on Natural Philosophy in this city. Its principal advantage consists in the fire-grate being surrounded by four cast-iron plates at an angle of 45°, which, when ground or polished, reflect more heat than most other stoves. A second advantage consists in the opening for the escape of the smoke being not larger than is necessary for the smoke alone to get away. By the smallness of this opening, there is not that waste of heated air which generally takes place in stoves where the opening is larger than necessary. Instead of having a plate of iron at the back of the fuel-chamber, a large fire-brick is inserted there, and boxed in (filled up compactly) behind.

In cases of chimneys smoking from a want of draught, we recommend these grates, and have found them a good cure; but when the cause arises from the wind blowing down the chimney, they are not effectual, farther than making the draught a little



stronger. The price of these stoves varies from 6*l.* 13*s.* to 15*l.* 15*s.*, according to the size and style of finishing.

We are, Sir, yours, &c.

Edinburgh, Oct. 10. 1833.

J. SIBBALD and SONS.

IN the section, *fig.* 33. *a* represents the ash-pan which receives the ashes that slide down the slope *g*; *b*, the fire-brick behind the fuel-chamber; *c*, the smoke-flue; *d*, the grate for containing the fuel; *e*, the cap for conducting the smoke to the flue; and *f*, *g*, the polished sides of the grate, forming an angle of 45° with the back, for the purpose of reflecting the heat into the room.

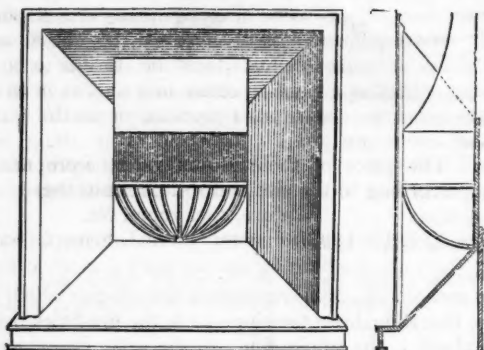
Our attention was first directed to the Russel stove by a young architect from Edinburgh, who called on us at Bayswater, and mentioned it as being a very superior invention. From his description, we recommended him to call on Mr. Eckstein, iron-monger, Holborn, who had then recently brought into notice a projecting fire-grate like that of Messrs. Sibbald, with a wind-up cap. Our architect, having called at Mr. Eckstein's, informed us that he considered the Edinburgh invention greatly superior to his; and we accordingly wrote to Messrs. Sibbald, who sent us a letter, of which the above is the essence. We wrote at the same time to a correspondent in Edinburgh, who understands the subject of grates and heating better than any other person we know; and from him we have received the following observations. We think it right to publish them, because we are certain that there are few things relating to the fittings-up of houses respecting which people in general, and even eminent architects and

builders, are more deficient in information, than parlour grates. Our correspondent says :—

The Russel grate can hardly be called a novelty; and I do not think that the slight differences which distinguish it from some others are improvements. It does very well in a chimney where the draught is always good, but will not do where it would be liable to slight occasional checks, as the smallest hesitation in the current makes the whole of the smoke come into the room. Several persons who have been induced to try these grates have been, for this reason, obliged to give them up.

Fig. 34. presents a form nearly analogous to that of the Russel

34



grate; but which is not liable to the same disadvantage, and which may be used in a chimney of less depth.

All forms of grates of this kind are, however, liable to an important defect; viz., that, from the great surface of the heated metal, heat is carried off to pass up the chimney. I feel satisfied, from my own experience, that the grate which I formerly described to you (see *Encyc. of Cott. Arch.*, § 1373. fig. 1243.), as being formed of three slabs of fire-brick, will heat a room with half the consumption of fuel which the best register grate would require; and, if I should ever again have to furnish a house for myself, I should have no other grate in any room of it. Any degree of elegance which may be suitable may be given to the external parts; so that its fundamental simplicity need be no objection to its introduction into highly decorated apartments. I need not add that this description of fireplace admits of being carried into execution, where ornament is no object, for a comparatively small sum.

\* \* \*

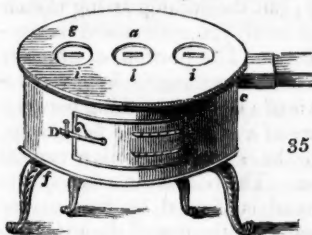
Edinburgh, October, 1833.



ART. VIII. *The Bruges Stove, as improved by Messrs. Cottam and Hallen.* By Mr. EDWARD COTTAM.

Sir,

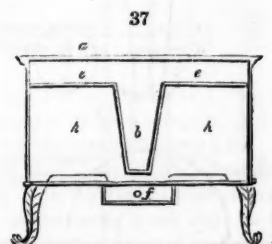
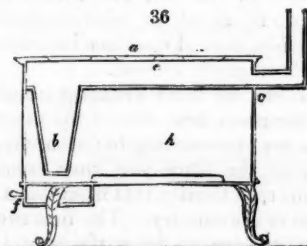
I SEND you sketches (figs. 35, 36, 37.) of the Bruges stove, as manufactured by Cottam and Hallen, who have found it to answer fully the statement given by them of it in your *Encyc. of Arch.* It will do more with a given quantity of fuel than any other stove; having the means of stewing, boiling, broiling, roasting, and baking, at one and the same time, with a small quantity of coke or cinders from any other fire.



It is simple in form, and there is not the slightest difficulty in its use. The holes in the top may be arranged as is found most convenient for the situation in which the stove is to be placed, either in a line, as in the sketch (fig. 35.), or in the form of a triangle. One thing is indispensable for the proper action of

this stove, and that is, a good draught. It must, therefore, have a separate flue.

In figs. 35, 36, 37. *a* is the top of the stove; *b* is the fire-pot; *g* is the hole for feeding the fire-pot; *f* is an ash-drawer;



*c* is the flue; *d* is the oven door; *h* is the oven; *e* is a space for the fire to pass to the flue *c*, and for heating the whole of the top plate, any part of which will produce sufficient heat for culinary purposes; *i i i* have lids, which may be taken off, and the battery of stewpans or boilers will then be in contact with the flame. A gridiron fits on any of these openings, which has the advantage of not smoking the article broiled, the draught being downwards.

I am, Sir, yours, &c.

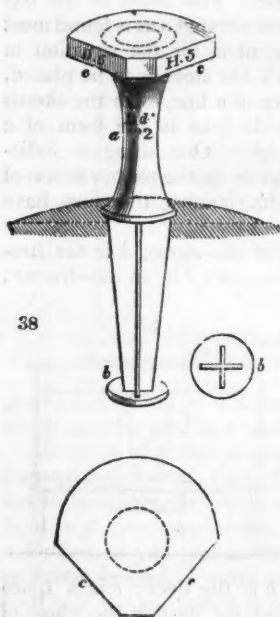
EDWARD COTTAM.

London, Feb. 12. 1834.

ART. IX. *Description of an improved Milepost invented by John Robison, Esq., and used on some of the great Roads in Scotland.*  
Communicated by Mr. ROBISON.

Sir,

I, SOME time ago, persuaded the trustees on the great road from Haddington to Dunbar to make an experiment with a mile-post, which I contrived so as to unite the properties of distinct notation of the distances, of indestructibility by mischievous boys, and of affording a resting-place to weary pedestrians. I have not a geometrical drawing of it at hand, from which I could take the dimensions; but the accompanying sketch (fig. 38.) will be quite sufficient to make you understand its construction.



The portion, *a*, which is above the surface, is hollow; the top is of a shape something between those of a cheese and a flat turnip, and the stem is a hollow conical tube. The portion inserted in the ground is formed by four planes meeting in the line of the axis, and having a flat plate at bottom, as shown at *b*. The whole is fixed in the ground, by digging a small pit, setting the casting upright in the bottom of the pit, and ramming in gravel, metal, or hard rubbish round it, until the surface becomes level, or gently curved.

There are three distances noted on the post; first, that of the place you are approaching to; secondly, that of the place you have come from; and, thirdly, that from the capital of the country. The first two notations are on flat surfaces (*cc*), made by sections from the cheese-formed top, and the last on the stem. In the figure, *Ed* signifies

Edinburgh, *H* Haddington, and *D* Dunbar. The founders are furnished with an alphabet of letters and a set of numerals, in tin, which are stuck on the pattern as required: the letters are thus cast in relief; and when the whole casting has been painted either black or white, the characters have the opposite colour impressed on them, in the way types were inked in the old mode of printing. These mile-posts are intended to be placed on the edge of the footway, next the carriage road.

I am sorry I cannot give you the items of the expense of casting and placing these mile marks; but I know it was after a comparison, in this and other respects, with other modes of construction, that the trustees adopted them, and, I understand, they have given general satisfaction to all classes.

I am, Sir, yours, &c.

JOHN ROBISON.

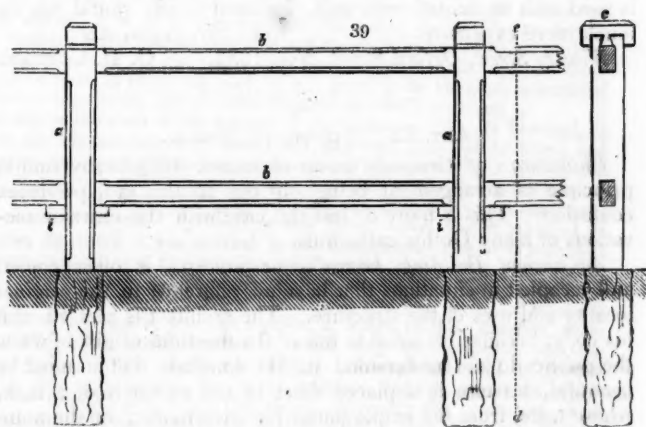
Edinburgh, Feb. 1833.

ART. X. Notice of a Wooden Fence, which may be put together without the Use of Nails, Screws, or other Iron Work, invented by G. H. Cottam, Esq. Communicated by Mr. COTTAM.

Sir,

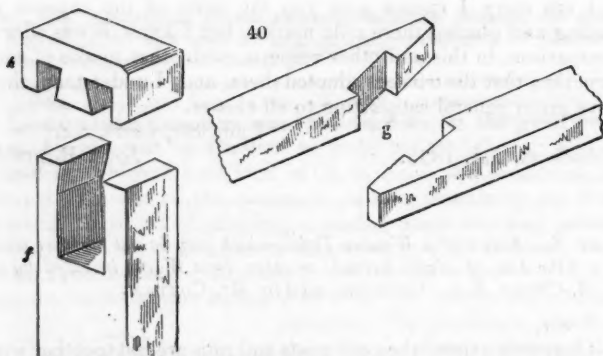
OBSERVING that, when oak posts and rails are put together with iron nails or screw bolts, the rusting of the iron after the first shower of rain disfigures the wood, and speedily occasions its decay, I set about considering how far the use of iron might be dispensed with in such structures. The first idea that occurred to me was, that wooden pins might be substituted; but as they are liable to various objections, and do not make such a neat finish as where nails are used, I had resort to the dovetail groove, which I have thus applied:—

Fig. 39. is an elevation of a portion of railing, in which *a a*



are the upright posts; *b b*, the horizontal rails; and *c*, a cross section on the lines *d e*.

On the top of each post, a dovetail groove, as shown at *fig. 40*. *f*, is worked out, into which the horizontal rails are laid, being



previously joined by a dovetailed groove and tenon, as shown at *g*; the cap *h* is then pushed in horizontally over the rail, and keeps it immovably in its place. The lower rails are joined together in the same manner as the upper ones, and, being inserted in vertical mortises, are kept firmly in their places by the wedges shown at *fig. 39. i i*.

The above mode of joining rails together, which, as far as I know, is new, has all the neatness of posts and rails bolted together with iron, must be much more durable than when that metal is used with unpainted oak, and, I should think, would not be much more expensive.

I am, Sir, yours, &c.

Winsley Street, Oxford Street, Nov. 1833.

G. H. COTTAM.

#### ART. XI. Architectural Maxims.

*PROFUSION of Ornament* in an elevation, without any simple principle of arrangement being obvious to the eye, produces confusion. This is more or less the case with the exterior elevations of many Gothic cathedrals.

*An ancient Building, known to be beautiful*, is often copied and recopied in situations that have no reference to the original locality and uses of the structure. The architect is pleased with his copy, because his mind is full of the beautiful original; while the public do not understand it, but conclude that it must be beautiful, because it is placed there by the authority of a man, whose taste, from his employment by government, or the nobility, they suppose to be excellent.

*In Architecture, as in other Arts of Taste*, the eye is frequently pleased without the mind being able to assign a reason. The effect is produced, but the cause is not immediately seen. No architect can be said to understand a building, and no critic to be competent to pass a judgment on it, who cannot refer every effect to its cause.

## REVIEWS.

**ART. I.** *Views and Descriptions of Cyclopian or Pelasgic Remains, in Greece and Italy; with Constructions of a later Period; from Drawings by the late Edward Dodwell, Esq. F.S.A. and Member of several Foreign Academies: intended as a Supplement to his Classical and Topographical Tour in Greece, during the Years 1801, 1805, and 1806. Imp. folio, 131 plates. London, 1834. 6l. 16s. 6d.*

THOUGH the work before us is of more interest to the antiquarian than to the architect, it is not altogether without possessing some degree of utility to the latter. He may here trace the progress of masonry, from the rude Tirynthian or Cyclopian style, in which large land-stones, or boulders, untouched by the hammer, were heaped on one another, so as to form walls of many feet in thickness, and the interstices rudely filled up with smaller stones without mortar, to the regularly coursed rustic-work of the ancient Romans. There are several intermediate styles: such as the second Tirynthian or Cyclopian style, in which the hammer is used; and the third, in which to the application of the hammer is added the use of mortar. The improved Cyclopian style comes next in order: in this, blocks of irregular size, from stone quarries, but all large, and all more or less hewn on the face, are placed on one another, so as to make close though not regular joints, without mortar. When this improved Cyclopian style is adopted with small stones, instead of very large ones, it is called the polygonal, or irregular, manner of walling; and when stones are laid in courses, and the stones themselves are not regular squares or parallelograms on the face, the walling is said to be in the acute and obtuse angled style; because, as it may be easily conceived, when, instead of vertical joints, we have sloping ones, the lower portion of one stone forms an acute angle, and the upper portion of the other, which joins it, an obtuse angle; whereas, in regular-coursed work of square stones, all the angles are right angles. It is to be regretted that the author did not live to classify and explain all the different modes of walling which he has exhibited in these interesting views; but the reader may have recourse to the author's *Tour through Greece*, to which this work, as it is stated in the titlepage, is intended to form a supplement, and to which frequent references are made.

It may amuse some of the builders of dry land-stone dikes, in Scotland, to know the classical names of their works, and what gave rise to them; and therefore we copy the following explanation of the plate which exhibits the ruins of the walls of Tiryns, said to have been built by the Cyclopians:—

"*View of the Walls of Tiryns.*—Hesiod and Homer mention the 'well-built walls of Tiryns.' Apollodorus and Strabo assert that it belonged to Prætos, for whom it was fortified by the Cyclopians. Prætos is supposed to have reigned over the kingdom of Tirynthia about 1379 years before our era. This computation would give an antiquity of nearly thirty-two centuries to the walls of Tiryns; and even this long series of revolving years does not appear too vast a period to assign to their duration, when we consider the gigantic masses of which they are composed, and the impenetrable strength which they display. Though the work of human hands, they seem formed to vie in existence with the rocks on which they are erected; and, unless they should experience the concussion of an earthquake, or be shattered by the force of artillery, they may last to the end of time. The account given by Pausanias of the walls of Tiryns accurately represents the earliest style of Cyclopian masonry. He says, that 'they were constructed by the Cyclopians, and composed of rough stones, the smallest of which was so large, that it could not be drawn by a pair of mules. The spaces formed in the walls by the irregularities of these masses were formerly filled up with smaller stones, which added more harmony to the structure.' The walls of Tiryns are, probably, at the present day, nearly in the same state

in which they were seen by Pausanias in the second century; for the town does not appear to have been rebuilt or repeopled after its destruction by the Argians, about 468 years before Christ. The surprising strength and the extraordinary bulk of these walls induced Pausanias to compare them to the treasury of Minyas at Orchomenos, and to the pyramids of Egypt." (p. 3.)

"All the exterior walls of Tiryns are composed of rough blocks, that seem to have been fitted together nearly in the same state in which they were taken from the surface of the soil, or from the quarry. The vacuities left by their irregularities have been filled up with smaller stones; the largest in the walls are between 9 and 10 ft. in length, and 4 ft. in thickness; their usual size is from 3 ft. to 7 ft., and the walls, when entire, were probably not less than 60 ft. in height. The interior of the Acropolis exhibits a few detached blocks, which have been hewn, and appear to have belonged to the gates." (p. 4.)

"The walls of Tiryns and Mycenæ constitute the finest Cyclopic remains that are to be seen in Greece; but these are inferior to the more stupendous structures of Norba, in Latium, which was a Pelasgic colony. Several other Pelasgic cities, whose wonderful ruins still remain in the unexplored and mountainous districts of the Volsci, the Hernici, the Marsi, and the Sabini, exhibit walls of the same style of construction, and of equal strength and solidity, with those of Argolis." (p. 4.) (See Dodwell's *Classical Tour*, vol. ii. chap. 7.)

The architect may in this work also observe what appears to have been the most ancient mode of covering the doors or other openings in walls, when lintels were not employed; and, probably, some will find, in the forms of the openings alluded to, the origin of the pointed arch. In the Acropolis of Tiryns there are the remains of a gate, 7 ft. 10 in. broad at the base, and 9 ft. high. "It is in the western wall, facing Argos, and its form probably bears the most ancient resemblance to that of the Gothic arch. It is composed of approximating blocks (in builders' language, stones corbeled over, or sailing over; from the French word *saillant*, that is, projecting), arranged in a similar manner to those in the walls of the treasury of Atreus at Mycenæ. Another gate of the same kind appears within the Acropolis of Tiryns, with a subterraneous gallery at its south-east angle. One of the gates at Mycenæ is of a similar shape; and other examples are found near Missalongi, in Ætolia, and at Thoricus in Attica: they are also seen amongst the ruins of Arpinium and Signia, in Italy." (p. 4.)

The most remarkable of these pointed gates are those to be found near Missalongi. (pl. 27. and 28.) These gates are among the remains of a ruined city, the ancient name of which is uncertain. It stands upon a rocky steep that bounds the marshes which extend along the sea coast. "In the lower part of the ruins of this city there is a chamber cut down perpendicularly in the rock. The breadth of this chamber is crossed by five parallel walls reaching to the upper surface of the rock: the six intermediate spaces, formed by the walls and the two extremities of the chamber, appear to have been covered with a flat roof. This singular edifice is composed of much smaller stones than those which were used in the walls of the city; the masonry is nearly regular; or, at least, exhibits only a few trifling irregularities, evidently more to be attributed to fortuitous circumstances than to any systematic plan. The stones are well united, but the exterior surface is rustic, or rough. Each of these walls has three apertures, or gateways, of unequal dimensions, and of a pyramidal form, terminating at top in an acute angle. Similar gates occur at Mycenæ, and at Tiryns, and they are found also in some ancient cities in Italy, which owed their origin to Pelasgic colonies. It is not easy to conceive the purpose for which these chambers were constructed, or to what use they were applied. They might have been employed either as prisons, as cisterns, or as granaries. The great door [misprinted wall] is  $7\frac{1}{2}$  ft. in breadth, and 16 ft. in height; the second door is not quite so broad as the other, and is 13 ft. in height; the smaller door is 10 ft. high; but the earth is considerably raised about them. The entire height of the wall is 24 ft." (p. 16.) Elevations of these doors would be simply isosceles triangles. Some of the other



openings of the same kind present the same description of triangle, placed on a parallelogram; and in some, for example, in pl. 22., in the little pointed gate at Thoricus, the sides are regularly curved, so as to form a pointed arch. Indeed, were the stones of the sides of this opening not corbeled, but arched, no one would ever question its being Gothic. Thoricus, which still retains its ancient name, was one of the twelve cities of Attica, and Xenophon tells us that it was fortified by the Athenians in the 93d Olympiad (about 400 years before the Christian era), on account of its being the principal safeguard of the neighbouring mines of Mount Laurion. The remaining walls are of white marble veined with grey, procured upon the spot, and are in the third Tirynthian or Cyclopiian style.

There are many curious particulars that might be quoted from this work, but we have said enough to show its interest to the architectural antiquary.

---

**ART. II.** *The Artificer's complete Lexicon for Terms and Prices; adapted for Gentlemen, Engineers, Builders, Mechanics, Millwrights, Manufacturers, Tradesmen, &c. &c.* By John Bennett, Engineer. 8vo, pp. 476. London, 1833. 12s. 6d.

FROM the title of this work we were led to suppose, before perusing it, that it contained an explanation of all the technical terms employed by artificers, and a list of the present prices of all articles connected with the building trade. Instead of this, not one term in a hundred is explained; and the prices appear to have been taken from the rates which have prevailed at different periods during the last twenty years, and alphabetically arranged, without having been thoroughly examined and corrected to the time of publication. The consequence of this is, that some of the prices given are actually those at present charged; while others are those which, though they have been charged at different periods during the last twenty years, are now no longer correct.

For example: under the head of "Brick," we have, "place bricks, per thousand, 1*l.* 18*s.*; stocks, 2*l.* 2*s.*; Stourbridge fire bricks, 15*l.* 15*s.*; and Welsh ditto, 14*l.*" Now, the price here given as being that of stocks is nearly what is now charged by the merchant for such bricks when delivered; but the place bricks are charged considerably too high, as the price of these bricks is always governed by that of stocks, and is generally from 8*s.* to 10*s.* under it. Stourbridge fire bricks are now to be had for 12*l.* per thousand; and Welsh fire bricks for 6*l.* 10*s.*, less than one half of the price given by our author. Under the head of "Deals," the price of 12 ft. 3 in. yellow deals is stated to be 48*l.* per hundred; whereas the highest price at present, in the merchant's yard, is 38*l.* To account for this difference, the author may say his price includes profit; but if so, why did he not include profit in the prices of all the other articles; such as stock bricks, for example; which, as before mentioned, are charged nearly at prime cost? Under the head "Plate Glass," we have the prices of a plate 80 in. by 40 in., 37*l.* 13*s.*; and for 90 in. by 60 in., 68*l.* 18*s.*; whereas, by the tariff for 1833, the price of the former (including profit) is 20*l.* 14*s.*; and of the latter, 45*l.* 8*s.* So that the two glasses may be now bought for less than is stated in this lexicon as the price of one of them. Under the head of "Lead," we have white lead charged at 2*l.* 6*s.* 8*d.* per cwt.; though it is now to be had for 1*l.* 8*s.*; nearly 20*s.* difference. If it were necessary, we could point out numerous other errors and inconsistencies in the prices contained in this lexicon, but we think enough has been said on that head.

In proof that not one term in a hundred is explained, we refer to the article "Carpenter and Joiner;" which occupies about sixty pages, and contains nearly as many words which are not to be found in any English Dictionary, and of which not a single explanation is given. For many of the terms ("butt hinges," for example) we have merely a reference to some other part of the work, where, however, it is in vain to look for an explanation. Perhaps the author may say that he intended his book for artificers, who

understand all these terms; but, if so, why call his book a "Lexicon, adapted for gentlemen, &c."? It would have been better to have called the work simply a book of prices adapted for tradesmen; but, in this case, if the readers of the book are supposed to be only such as are likely to understand the technical terms, why explain to that class such words as "Cag, or Keg, a cask or barrel, which contains from four to five gallons;" "Coomb, a dry measure, containing four bushels;" "Dram, the sixteenth part of an ounce," &c.? — S.

ART. III. *The Architectural Director; being an approved Guide to Builders, Draughtsmen, Students, and Workmen, in the Study, Design, and Execution of Architecture, &c.* By John Billington, Architect. Part I. 8vo, 2s. 6d. To be completed in twelve parts, to form three volumes. London, 1834.

THE first edition of this work lies before us, in one small 8vo volume. Its appearance creates suspicion, from the circumstance of there being no year mentioned at the bottom of the titlepage; no place or date to the dedication, which is to the Duke of Norfolk; no date, place, or signature to the preface; and neither engraver's name nor date to the plates. These particulars are seldom wanting to works which really are what they profess to be. On looking over the preface, in the volume alluded to, we find the following passage:—"Construction forms no part of the body of this work; but the necessary information will be found in the dictionary attached to it. Landscape-gardening, however, as connected with architecture, is not omitted, but will be found treated in its proper place." (p. x.) Now we have looked in vain, in this first edition, for the "dictionary," or the "landscape-gardening," and equally in vain for the slightest notice of an intended second or third volume, in which these articles might be contained. We have, therefore, been in the habit of looking on Billington's *Architectural Director* as, to a certain extent, an imposition on the public. If the name of Billington be not fictitious, it is, at all events, that of an architect with whom no one we have ever met with has been personally acquainted.

The second edition of this work (part i. of which has been sent us), as it is proposed to be extended to three volumes, will probably remedy the defects of the first edition; but we must confess that the address on the fourth page of the wrapper is sufficient to prejudice any thinking purchaser against it. If the publisher had wished to ruin his work, he could not, in our opinion, have taken a more effectual mode of doing so than by printing this address. We should scarcely have thought that any one could suppose that purchasers of an architectural work could be entrapped by such a passage as the following:—"The high patronage, and extensive number of subscribers, including the names of the most eminent men of the British metropolis, of which the present work can boast, are the best proofs of its undoubted superiority over many publications treating on architecture. Such persons, therefore, as may wish to secure a copy of this work are requested to make an early application."

What is the number of subscribers; and why are not a few of the names of the "most eminent men in the British metropolis," who rank among them, given? Have these "eminent men" subscribed to the second edition without any knowledge of the first? The idea of securing a copy of a work like that before us is ultra—we will not say what.

The quotation of a review from the *Courier* is next given, without date; so that the reader is left to guess whether it applies to the first edition or the present one. This criticism is very properly designated a "flattering notice."

Notwithstanding the prejudice excited in our minds by the publisher's address, we will examine the part before us with care and impartiality; and we will state our opinion candidly.

This part i., then, contains a portion (32 pages) of the first edition, printed in a large type, and on a large page; a portion of a glossary (16 pages); and

2 quarto and 5 octavo copperplate engravings; with a printed folio table of the proportions of the Corinthian order. In the reprint from the former work, some passages are omitted, but none are added or altered. The glossary does not appear to us carefully done. For example:—"Accouplement: a framing of carpentry; also applied to signify a brace or tie." The words "framing of carpentry" give no distinct idea of what is meant. "Air trap: an aperture to admit the escape of foul air from sewers and drains." It happens to be just the contrary: an air trap is for the purpose of preventing the escape of foul air from sewers and drains. Air trunk is the term to which the author's explanation applies.—"Acanthus." We are told there are two species of this plant; the one wild, and the other cultivated: implying, we suppose, that one species is cultivated, which is not the fact; or that the cultivation of a plant makes a different species of it. This appears ridiculous to a botanist or a gardener: but perhaps it will hardly be considered fair in us to examine this glossary botanically; if it were, we should object to the scientific names not being given to the terms "Abele tree," "Acacia," and "Alder," and also to the native countries of these trees not being mentioned.

The plates are chiefly outlines. The first quarto plate contains an elevation of St. Peter's; the second is a plan of an arcade: one of the octavo plates is a very neat ground plan of a church; and the remainder are mouldings, and other details of the "five orders."

The work is cheap, and in that respect good. The British workman has hitherto been put to much needless expense by the publication of elementary architectural works in more expensive forms than were at all necessary. Till lately, indeed, architectural publishing was a sort of monopoly in the hands of only one or two persons.

The first edition of this work was almost entirely a translation from the French translation of Vignola. James Barozzio de Vignola was an eminent architect and architectural writer, who was born at Vignola, in the territory of Bologna, in the year 1507, and died in 1575. The Italian title of his work is *Regola delli Cinque Ordini d'Architettura*. It was translated into French under the title of *Traité des Cinq Ordres d'Architecture* in 1669, and has since passed through several editions in that country. A good English translation, with the plates engraved of such a size as to be really useful to the British workman, is a desideratum, but one which will not be supplied by either the first or second editions of Billington's *Architectural Director*.

---

ART. IV. *Catalogue of Works on Architecture, Building, and Furnishing, and on the Arts more immediately connected therewith, recently published.*

ROBINSON'S new Vitruvius Britannicus. Parts I. and II. folio. London, 1833. 3l. 3s.

Coney's Interior View of Milan Cathedral. fol. London, 1834. 5s.—Mr. Coney's recent and premature death has left his widow in such reduced circumstances as will, it is hoped, induce the patrons of the arts, and the admirers of his talents, to encourage the sale of this fine print, which is offered at so low a price as to justify her anticipations of its success.

Shaw's Specimens of the Details of Elizabethan Architecture. Part I. 4to. London, 1834. 5s.

Shaw's Ornamental Works in Louis XIV.'s Style. folio. London, 1833.

Blunt, Charles John, and R. Macdonald Stephenson, Civil Engineers, Architects, &c. &c.: The Civil Engineer and Mechanist. Practical Treatises of Civil Engineering, Engineer Building, Machinery, Mill-Work, Engine-Work, Iron-Founding, &c. &c.; designed for the Use of Engineers, Iron-Masters, Manufacturers, and operative Mechanics. Division I. Imperial folio. London, 1834. 1l. 1s.

*Laston's Improved Builder's Price Book for 1834.* 8vo. London. 4s.

*Skyring's Builder's Price Book for 1834.* 8vo. London, 1834.

*Gregory's Mathematics for Practical Men; being a Commonplace Book of Principles, Theorems, Rules, and Tables, in various Departments of Pure and Mixed Mathematics, with their Applications; especially to the pursuits of Surveyors, Architects, Mechanics, and Civil Engineers.* 8vo. 2d edit. London, 1834. 14s. boards.

*Warren's Hints upon Tints; with Strokes upon Copper and Canvass.* 12mo. London. 2s. 6d. sewed.

*Hullmandel's Art of Drawing on Stone.* Royal 8vo. London, 1834. 12s. half-bound.

---

#### ART. V. *Literary Notices.*

*The New Vitruvius Britannicus*, which will contain the History of Hardwick Hall, will appear in June next.

*An Attempt to discriminate the Styles of Architecture in England; with Notices of above Three Thousand Edifices.* By Thomas Rickman, Architect, F.S.A. The fourth edition is in the press.

*The Temple of Jupiter Panhellenius and Antiquities at Egina*, being the first section of a work on the Antiquities of Greece, by C. R. Cockerell, A.R.A. and F.S.A., will be published in June next by subscription.

*Architectural Illustrations of Eastbury House, Essex*, by T. H. Clarke, Architect, will appear in May next.

*The ancient Gates and Fortifications of the City of York*, by H. F. Lockwood, and A. H. Cates, Architects, will shortly appear.

*Analysis of the Defective State of Turnpike Roads and Turnpike Securities; with Suggestions for their Improvement*, by F. Phillips, Esq., is in the press.

---

#### MISCELLANEOUS INTELLIGENCE.

##### ART. I. *General Notices.*

*UNIONS of Workmen connected with Architecture and Building.*—One of the latest great strikes was that of the Lancashire builders, last year. The men persisted more than six months. The expense, to the Union, of the idle workmen was about 18,000*l.*; but the loss sustained by the working builders was four times this sum. They had refused work when there was work in abundance for all. In consequence of this refusal, many of the buildings were discontinued; and the places of some of the men were supplied by labourers brought from distant parts, and also by the introduction of machinery: so that the application for employment could not be granted. By their long cessation from work, habits of idleness, and not a little increase of immorality, had ensued. In the false hope of attaining their object, they had endured deprivations only second to absolute starvation; and now, when the day of forced repentance had come, the still farther degradation of pauperism awaited them. The failure of the strike was complete; and the disastrous consequences that resulted from it have taught a lesson to the Lancashire workmen, which, it is to be hoped, they will never forget. (*Character, Object, and Effects of Trades' Unions*; and *Morning Chronicle*, March 15.)

*Cleaning Furniture.*—The many accidents arising from the dangerous practice of boiling turpentine and wax for cleaning furniture induces me to send you, from my commonplace book, a receipt for the mixture of these articles, which will prove a much superior and more effectual plan than that usually adopted, and by which so many individuals have lost their lives:—

Put the quantity of turpentine required into a vessel, then scrape the bees' wax into it with a knife, which stir about till the liquid assumes the consistency of cream. When prepared in this manner, it will be good for months, if kept clean; and it will be found, that the furniture cleaned with the liquor manufactured in this way will not stain with the hand so readily as when the boiling process is adopted. But if some people must have heat in the mixture, it can easily be got, by placing the vessel containing the turpentine and wax into another containing boiling water; which will do the business as well as any fire whatever. — *A Journeyman Cabinetmaker. London, Jan. 3. 1834.*

*Ventilation of Bedrooms.* — There should be a constant circulation of fresh air in bedrooms. The lungs must respire during sleep as well as at any other time, and it is of great importance to have, when asleep, as pure an air as possible. It is calculated that each person neutralises the vivifying principle of a gallon of air in one minute: what havoc, therefore, must an individual make upon the pure air of his bedchamber, who sleeps in a bed closed snugly with curtains, with the doors and windows shut, and, perchance, a chimney-board into the bargain. Our health and comfort depend more upon these apparently trivial points than most people are aware of. "Confined air," says Dr. Franklin, "when saturated with perspirable matter (the quantity of which is calculated to be about five eighths of what we eat), will not receive more, and that matter must remain in our bodies, and cause disease. We may recollect, sometimes, on waking in the night, we have, if warmly covered, found it difficult to get to sleep again. We turn often, without finding repose in any position. This 'fidgetiness,' to use a vulgar expression, is occasioned wholly by an uneasiness in the skin, owing to the retention of the perspirable matter. To obviate the ill effects of this annoyance, the following rule is recommended. Preserve the same position in your bed, but throw off the clothes, and freely admit the fresh air. This will clear the skin of its perspiration, and you will experience a decided and speedy refreshment. If this be not successful, get out of bed and walk about the room; and, having shaken the bedclothes well, turn them down, and let the bed get cool. When you begin to feel the cool air unpleasant, return to bed, when you will experience the good effects of your plan. The bed itself should be so placed as to admit a free circulation of the air round it, and the curtains, if curtains there must be, ought never to be perfectly closed. It would be well if, in all the apartments, but especially in bedchambers, the upper sashes of the windows were contrived to let down; for, by this means, the admission of fresh air would be, at all times, perfectly safe; as the body, when even under such a sweat as could not, without danger, be interrupted, may receive all the refreshing, restorative, and invigorating influence of the air, without being exposed to a stream of it." Franklin himself, whatever might be the season, slept with his window open, more or less, and advised his friends to do the same; many of whom adopted the practice, and acknowledged the advantages of it. (*Glasgow Courier.*)

*Mr. Bagshaw's Artificial Stone for Pavements or Flooring.* — We have spoken of this composition in our *Encyclopædia of Architecture*, § 2008., and have since seen testimonials in its favour from Messrs. Abraham, Newman, and Williams, architects; and from Mr. Bellman of Howland Street, London, who, having floored his shop half with it and half with Yorkshire stone, finds the artificial stone much warmer than the latter. The price of this stone is 1s. a foot, three inches thick.

*Clarke's improved Blower* is a tin tube, about 18 in. long, tapering about  $\frac{1}{4}$  in. in diameter, at an average. At one end is a circular box, containing a wheel with four fans, which is turned by means of two multiplying wheels with a catgut rigger; these being set in motion by a winch. The velocity of the revolution of the fans draws in the air and forces it through the mouth of the tube. The price varies from 4s. 6d. to 15s. — *W. L. London, March 15. 1834.*

## ART. II. Foreign Notices.

## FRANCE.

It is now positively decided that a colossal statue is to be erected on the lantern which surmounts the dome of the Pantheon. A scaffold is now (Nov. 1833) erecting to place there a figure of Fame, in wood and gilt to try the effect, before one is erected of more durable materials. (*La Propriété*, Nov. 9. 1833.)

*Versailles*, Oct. 1833. — There is a talk here of fitting up some of the apartments in the palace, particularly the chamber formerly occupied by Louis XIV., in the magnificent style of his age. The new furniture is to be made from models suggested by an old picture which has been found, representing this apartment in the time of Louis XIV. The bed will be remarkably splendid. The other rooms are to be converted into a historical museum; and are to be hung with battle pictures of the reigns of different French monarchs, particularly of Napoleon, so as to form a pictorial history of the wars of France, during the last century. — *S. C. de Loire*.

A new public library has been established in the city of Amiens, at the expense of a distinguished architect, M. Cheussey; who, in building it, has very cleverly contrived to make use of the materials, and especially the ornaments, of an old convent which formerly stood on the spot. (*La Propriété*.)

## GERMANY.

*Berlin*, Dec. 10. 1833. — I am sorry that I have little to communicate in the way of architectural news. Perhaps the principal change which has taken place in our modes of construction since you were in Berlin [in 1813] is in the more general introduction of cast iron in almost every description of edifice. We have several cast-iron bridges over the Spree; and the new gates at Charlottenburg, in the style of Louis XIV., are of that metal. Some of the manufactories have their floors constructed with flanged cast-iron beams, which form abutments to brick arches. Plate iron, as a covering for roofs, has been long in use; but it is only lately that we have begun to construct rafters of cast and wrought iron, to support iron plates. The architects here consider our castings much stronger than yours: they say they have a smoother and more compact surface, which, forming a harder case, they allege must be less liable to fracture. You are, no doubt, aware that the superiority of our castings is owing to the fineness of the sand of which the moulds are made; and that the same sand which is used for casting earrings and bracelets is used also for casting joists, rafters, and cannon.

Our roads are beautifully macadamised; and a new description of ornamental milestones are in preparation, as substitutes for the old ones. Our friend Mr. — carries with him a drawing of one of these, which he will give or lend you, if you wish to see it. I must refer you to your correspondent M. Linné for what is going on at Potsdam; and, as to the other cities of Germany, I have not, as you know, been at Dresden or Vienna for several years. You have heard, no doubt, of the improvements which Prince Metternich is carrying forward at his hereditary residence at Königswart in Bohemia; and of the chapel which he has just completed there. The country palace of the Duke of Coburg at Reinhardsbrunn, near Gotha, is, I see by the newspapers, undergoing improvements in the Gothic style, under the direction of the architect Eberhardt. — *T. S.*

We shall give an engraving and description of the milestone above mentioned, in an early Number. — *Cond.*

## NORTH AMERICA.

*A new Mode of warming Factories* is thus described in an American paper: — "A pair of horizontal circular plates of cast iron are enclosed in a brick oven about 4 ft. in diameter. These plates weigh 1600 lbs., and operate upon each



other like a pair of millstones ; with this exception, that the upper one is stationary, and the lower one revolves. The upper one is set in motion by machinery ; and the ordinary speed is eighty revolutions in a minute. The size of the plates, their thickness, and the velocity with which they revolve, are considerations which the size of the building to be heated must regulate. From the top of the brick enclosure, or oven, a funnel is projected ; and from this the heat can be thrown off, as through ordinary furnaces, to any part of the building. In fifteen minutes from the time the machinery was put in motion (which was done by a band passed round a shaft inserted in the lower cylinder), the heat from the mouth of the funnel, in an upper story, was as great as could be borne by the naked hand."

#### AUSTRALIA.

*The pure white Sand of Sydney*, it has been discovered, is the best yet known for the manufacture of pure glass. It is without oxide of iron, or any other matter that would affect the colour of the glass ; and it is free from insoluble matter, so that glass made from it is more brilliant and watery than any other, and therefore peculiarly fitted for optical and astronomical purposes. This sand is produced by the decomposition of the white sandstone which is the geological characteristic of the coast about Port Jackson, and which constitutes the great bulk of the soil about that country. This discovery, which was made by a Mr. King, is of great consequence to the colony ; not only as affording a valuable article of export, which will serve at the same time as ballast ; but because, from the heavy weight it makes in the hold, vessels laden with wool are enabled to take in a much larger cargo of that light yet bulky commodity, which is the only staple one of the colony. (*King's Letter to Lord Goderich, and Sydney Monitor*, July 20, 1833.)

Glass manufactured of the Sydney sand may be obtained of Messrs. Pellatt and Green.

### ART. III. Domestic Notices.

#### ENGLAND.

**ARCHITECTURAL SOCIETIES.**— Endeavours seem to be making among the architects and surveyors of London and its vicinity to establish Architectural Societies. A number of young architects have met occasionally, for mutual improvement, in Exeter Hall, since 1831, and they contemplate the establishment of an Architectural College, after the manner of those of Germany. Some other architects and surveyors have had meetings, for the purpose of establishing a Society for the study of architecture and architectural topography. As soon as any thing definite has been determined on by these incipient bodies, we shall not fail to lay it before our readers. There is also a third body of architects, who meet occasionally, but chiefly, as our correspondent Scrutator informs us, for the purpose of dining together.

**Architectural Exhibitions.**— Some beautiful models, by Mr. Day, of ancient and modern buildings, including a model of the National Gallery now building, are exhibiting at a house near the Adelaide Rooms ; and in these rooms also are some handsome architectural models. In the National Repository, in Leicester Square, a number of articles connected with architecture, building, and furnishing, deserve our particular notice, and shall have it, we trust, in our next Number, where we intend to give a more detailed account of the models by Mr. Day, &c., above alluded to.

*Sir John Soane's Lectures on Architecture at the Royal Academy* were completed for the season on the evening of Feb. 13. It is expected that these lectures will be published, and also that in order to commemorate the sense entertained by the profession of "the eminent services rendered by Sir John Soane to architecture, by his personal example, during a long period of honourable professional practice, and by the precepts contained in his lectures

delivered before the Royal Academy; and of the generous zeal with which he has formed his splendid museum of ancient and modern fragments and models, and his fine library; and, more particularly, of his noble gift of this collection to the nation," by striking a medal, one side of which should contain a portrait of Sir John Soane, and the other, some portion of his favourite work, the Bank of England, encircled by an inscription of the following import:—"A tribute of respect from the British School of Architecture." (*Lit. Gaz.*, Feb. 15. 1834.)

*Emigration of Architects.*—Mr. Ross of Bristol, who furnished several designs for our *Encyclopædia of Architecture*, and who acquired very considerable public approbation by a course of lectures on architecture in Bristol, is gone to settle at New York, and has promised to become our correspondent there. Another contributor to our *Encyclopædia* proposes to leave London for New York, with a cargo of ornamental chimney tops, and other articles in artificial stone and papier maché, in the course of the month of May. Two other architects, our correspondents, propose going to Van Diemen's Land. Two young friends of ours, one an architect and the other a surveyor, who went from London, and settled at Sydney in 1825, are now doing remarkably well there. From one of them we have just received a long communication; but, as it requires several engravings to illustrate it, its appearance must be necessarily deferred till next Number.

*The Abattoirs at Islington* we consider to be among the most interesting and valuable architectural improvements which have been made in the metropolis for many years, from the humanising influence which they will eventually have on all those connected with the trades of butcher and cattle-driver. They will also greatly diminish the amount of suffering by the poor animals themselves. A correspondent has promised us an architectural description of these structures, which we shall shortly lay before our readers.

*A Public Market at Knightsbridge* is projected by a company, and the designs, which we have seen, are by E. B. Lamb, Esq. The arrangements appeared to us most judicious, and we trust the plan will be carried into execution.

*Fishmongers' Hall*, which has been lately rebuilt close to London Bridge, is a piece of architecture of which we cannot at all approve, from the use which has been made of three-quarter columns in two of the elevations. In other respects, we believe, the building is good: but our readers will have the opinion of a professional friend on it in our next.

*A handsome new Church, in the Gothic Style*, at Clerkenwell, has just been completed, from the designs of our highly gifted young contributor, Mr. Lamb.

*A new Prison at Westminster* is nearly completed, under the direction of Robert Abraham, Esq., who has kindly promised to enable us to inspect it, with a view of giving a notice of it in this Magazine.

*The National Gallery*, to which allusion is made by our Paris correspondent (p. 46.), has at length been commenced, from the designs of Mr. Wilkins, by the builders, Messrs. Harrison. The foundations are building of brick, and, after they have been carried to a certain height, what, in these degenerate days of masonry, is called the foundation stone, will be laid by the king.

*An experimental Railway* is now being laid down at Camden Town, by John Isaac Hawkins, Esq., a civil engineer, distinguished by his science and inventive powers, for the purpose of illustrating the application of Mr. Saxton's patent deferential pulley in the propulsion of carriages. It is calculated that, by the use of this pulley, with horses walking at the rate of two or three miles an hour, or using as a substitute for horses, fixed steam-engines, carriages may be propelled at the rate of thirty miles an hour, even on a surface not level or regular. This work is carrying on by subscription, and we sincerely wish it success.

*The Street Architecture of London* does not, in our opinion, get a tithe of the attention which it ought to have from architects; which is the more sur-

prising, since it is likely soon to constitute a principal part of their employment. One great object of this Magazine is to give shopkeepers a taste for architecture, and thereby to induce them, when they rebuild or repair their houses, to employ such architects as can design elevations equal in dignity to that of Fearon's house in Bond Street, or in originality and elegance to that of a tailor opposite the Traveller's Club-house in Pall Mall.

*A Model of the great Pyramid of Cheops* was lately exhibited at the Duke of Sussex's conversazione at Kensington Palace. It is composed of 43,000 pieces of cork, and shows a vertical section of the pyramid; from which it appears that this pile was not only built upon, but round, a rock, which, it is stated, rises in the centre of the pyramid 130 ft., and on the apex of which is situated what is called the queen's chamber. The pyramid was originally covered with plaster or mortar; which made the surface even, and thus rendered the ascent so difficult as to be accounted by the ancients a great feat. This plaster having now fallen off, the ascent is easy.

*The Pantheon* in Oxford Street is undergoing important alterations, so as to fit it for a bazaar of a very superior description. In this bazaar there will be two new and very interesting features: a saloon, for the exposure of sculptures, paintings, engravings, and other works of the fine arts, which will be open to the public, free of expense, at all times; and a conservatory, of 88 ft. in length, and 25 ft. broad, for the exposure for sale of plants in pots. The saloon of the fine arts, from being open to the public, will tend to improve their taste in art, and the flowers in the conservatory their taste in nature. The architect, under whose direction the works are carried on, is Sydney Smirke, Esq.; who has favoured us with views of the conservatory, &c., which we intend, at a future time, to engrave.

*Lancashire.*—Some time ago we read an account, in a Preston newspaper, of a very interesting lecture on architecture, which had been delivered in that town. Should this meet the lecturer's eye, we invite him to become our correspondent, as we do Mr. Kenion, our valuable contributor to the *Magazine of Natural History*. We should wish to know how the Preston viaduct goes on. For architectural improvements in Lancaster and its neighbourhood, we trust to Mr. Saul; in Liverpool, we have several gardening and natural history correspondents, but none strictly architectural. For Manchester we trust to Mr. Stanway.

*Middlesex.*—A correspondent has pointed out to us the great want of underdraining in some parts of the metropolitan districts of roads, in consequence of which, however great may be the quantity of metal laid on, the water, rising up through it, keeps the road so moist as to render its surface a continual puddle. We could ourselves say a good deal as to the neglect of the footpaths in several places near London, and especially between Shepherd's Bush and Oxford Street, but we shall wait till after we have reviewed the excellent *Treatise on Road-making* by Sir Henry Parnell.

*Northumberland.*—The accommodations for the cottagers in this county are indeed too frequently very bad, often with only one, and that a very comfortable, room; but your excellent *Enc. of Arch.* is well calculated to draw the attention of proprietors to this subject, and will, I trust, have the desired effect. Mr. Green of Newcastle, your correspondent, is an architect extensively employed, and has made many ameliorations where he has had full liberty. He can render you the most valuable assistance in your highly useful undertaking. — *R. E. T. August, 1833.* We shall expect to hear from Mr. Green, and also from Mr. Falla; and we invite other correspondents, from that interesting part of the country, to send us all the information in their power. — *Cond.*

*Oxford.*—Sir, In August last, I passed through the show rooms of Mr. Edwards, High Street, Oxford, and was much gratified by a number of articles there exhibited. Mr. Edwards has made great improvements on Witty's furnace, by which it is not only much more easily managed and kept in repair, but is far better adapted for heating water, either for the purposes of

washing or brewing, or for circulating as a medium for conveying heat or producing steam. He has prepared, for showing to strangers, a tin model of one of his improved Witty's furnaces, which I may at some future time describe to you. The other improved articles which I saw, I shall notice under separate heads.

*Kitchen Furniture.* A portable roaster, formed of tin, is considered a most useful and economical apparatus for roasting meat before an open fire. The ordinary size of this roaster is about 3 ft. long, 2 ft. high, and 1 ft. deep; but some are made nearly twice as large. The front which faces the fire is open, and the back and sides are of tinned iron. The spit is let into notches in the ends, and is turned by a small wind-up jack.

*Laundry.* An improved ironing stove, in which the fire is enclosed in brickwork, and consequently the fuel is more completely consumed, and the heat longer retained, than in the common stoves of this kind, which are wholly of cast iron.

*Bedchambers.* An oval hip bath, made of tin or of copper. The depth of this bath, inside measure, is 12 in.; the base on which it stands is 3 in.; the length of the bath is 13½ in. at the top, and 19 in. at the bottom; its breadth 21 in. at the top, and 12½ in. at the bottom; the shoulder-piece is 8 in. deep. This bath may be used as a child's bath, hip bath, foot bath, sponging bath, or even as a washing-tub.

*Miscellaneous.* A garden engine, with an iron frame, is an article of great utility; not only for gardens, but for washing down cobwebs, dust, &c., from outside walls. The engine lifts out of its frame, and in its place may be put the body of a common wheelbarrow, or a large basket for carrying clothes, or vegetables, or short grass. Hand-glasses of tinned iron, of different sizes, are manufactured by Mr. Edwards, and sold at remarkably low prices.

Perhaps it may be thought by some, that notices like the above are intended more as advertisements for tradesmen than as intelligence for your readers; and I admit that, at first sight, they seem liable to this objection. I think, however, that the public are as much indebted to those who bring before them notices of real improvements in domestic articles, as they are to those who treat on points of science. In all the notices of this kind which I shall send you, it will be found that my object is not less to make known the uses of the article recommended, than to give such an idea of its construction as that it can be made by other manufacturers. — *John Brown.* Woodstock, Jan. 1834.

*The Architectural Improvements at Nuneham Courtenay*, under the direction of Sir Robert Smirke, will tend to keep up the reputation of that noble place. But, as I know you have a correspondent on the premises, I shall leave him to describe the fine additions now making to the mansion in the Grecian style, the architectural terrace, &c. — *Id.*

*Warwickshire.* — A town hall, which is now nearly completed in Birmingham, will be one of the grandest structures of the kind in Britain. The general form is that of a Grecian temple; but the length and breadth are much better proportioned to each other than those of the Bourse at Paris. A description, plan, elevations, and sections are promised us by the architects, Messrs. Hanson and Welch, which we shall lay before our readers.

*The Free Grammar School*, in New Street, Birmingham, founded by Edward VI., will shortly be rebuilt from the designs and under the direction of Charles Barry, Esq. The principal elevation is of a highly enriched Tudor Gothic.

*A new Market*, in High Street, Birmingham, by Charles Edge, Esq., has been some time completed, and forms a great ornament to the town. It has done away with the disgrace, which has so long attached to Birmingham, of having no market house. We have written to Mr. Edge, and trust to him for a description and sketches.

*Wiltshire.* — Accounts have been received of the architectural improvements now going forward at Tottenham Park, and at Ashton Hall, in this county; but they are too long for introduction in the present Number.

*Worcestershire.* — In the *Worcester Herald* for November 30. 1833, is an admirable letter on the importance of the fine arts to a commercial country like Britain. It was written in consequence of an announcement of an intended exhibition of works of the fine arts in Worcester, and would be well worth reprinting in our pages, had we room. The signature to that letter is Lorenzo; and we should be most happy to reckon him among the number of our correspondents.

#### WALES.

*Caernarvonshire.* — One of the largest private residences in Britain, in the castle style, is said to be now building at Penrhyn, near Llandygai, for G. H. D. Pennant, Esq., by Mr. Hopper. This gentleman was the architect of the Gothic conservatory which was connected with Carlton House, when that building existed; and is employed on many mansions and villas now in the course of erection or improvement in Great Britain and Ireland. We should be happy if Mr. Hopper, or some of his friends, would favour us with notices of the mansion at Penrhyn and of the others alluded to. We had an opportunity of seeing several of Mr. Hopper's works, in the course of a tour, last summer, through some of the western and southern counties of England.

*Glamorganshire.* — Near Swansea, a new pier, roads, cottages, and various improvements, are going forward on the estate of our correspondent J. E. B., who, as a patron of the fine arts, will, we trust, send us some account of them, and of the state of architectural improvement in that part of the country.

#### SCOTLAND.

*Edinburgh.* — A new approach to this city, from the west, has been for some time in the course of execution, and is now nearly completed. It may be remarked of this road, which is carried obliquely along the south-west side of the Castle Hill, that, like the Earthen Mound, it tends to counteract the natural features of the ground: but, as the characteristic of all architectural improvements ought to be utility, this should not be objected to, unless it can be proved that the natural features and the artificial advantages are not incompatible with each other.

*Cottages for the Labouring Classes.* — The premium of a piece of plate, of 20 sovereigns' value, offered by the Highland Society, has been awarded to Mr. George Smith, architect, Edinburgh. (*Scotsman*, Jan. 18. 1834.)

*Boring and blasting Rocks.* — A newly invented apparatus for this purpose has lately been exhibited before a number of scientific gentlemen connected with this city and county. The inventor is Mr. D. Millar, road contractor and builder. The apparatus appears to be a more efficient boring instrument than any hitherto in use. It is calculated to bore or tap the depth of 100 ft. or upwards, and may be put in operation either by manual labour or steam. (*Scotsman*, Feb. 22. 1834.) An instrument for the same purpose was invented by Mr. Mallet of Dublin, in 1832; of which a detailed account will be found in the *Mechanics' Magazine* for 1833. Mr. Mallet's object was to split all rocks that could be separated into laminæ by the application of male and female screws, instead of blasting, as heretofore practised, with gunpowder. The process is as follows: — Jumper holes are formed, in the direction of the proposed fracture, as at present; but, instead of filling them with gunpowder, a split female screw is inserted in each hole, and the fracture is effected by the insertion of a conical or male screw.

*Cooking by Gas.* — I have nearly completed a small lean-to from my kitchen, in which, by means of gas stoves, I expect to supersede altogether, or nearly so, the old processes of cooking by open fires and hot tables, and thus to get rid of various nuisances and inconveniences of heat and smells. It appears to me that this mode of cooking must lead to many beneficial changes in the culinary department, by greatly abridging the labour of the cook, enabling her to work with more comfort to herself, and to superintend more

extensive preparations than any one person can, in the present way, look after.  
—*J. R. Edinburgh, Oct. 13. 1833.*

*Further Experience of my Gas Cooking Apparatus* confirms me in the opinion that it possesses many advantages. I have nine stoves in a range, varying from 4 in. in diameter to 10 in.; but I now find that even the smallest-sized ones are quite powerful enough for boiling the largest cooking pot which can be required (say for a round of beef of upwards of 20 lbs. weight); so that the expense is still less than I calculated. When all the nine stoves are burning at once, the consumption of gas is about 1 cubic ft. in 47 seconds, which at the price of gas here (9s. 6d. per mille) is considerably under a shilling per hour; and, if all the stoves were under 6 in. in diameter, the expenditure of gas would not exceed half the above quantity. It rarely happens that nine fires are required at once, as two pans boil very well when set together over one stove. In this way, you will see that the economy is as decided as the advantages in point of convenience and cleanliness.—*J. R. Edinburgh, March 5. 1834.*

*Aberdeenshire Cottages.*—We are far behind in cottage architecture in this part of the world; but even here your *Encyclopædia of Architecture* is beginning to work.—*T. Y. Vale of Alford, Feb. 22. 1834.*

*Dumfriesshire.*—The palace of Drumlanrig, which occupies one of the most striking sites in the south of Scotland, is now undergoing a thorough repair, under the direction of the celebrated Edinburgh architect, Mr. Burns. One of the handsomest gardener's houses in Scotland, in the cottage Gothic style, has lately been completed in the gardens, from designs by this gentleman. We regret to say, that, when we saw Drumlanrig, in 1831, the approach and other features in the park were altogether unworthy of such a place, and of a proprietor of so much wealth and influence as the Duke of Buccleugh.

*Ross-shire.*—Your *Enc. of Arch.* is invaluable in this part of the country; and various proprietors as well as myself have built specimen cottages after your models, though your improved waterclosets and cesspools are what we do not here understand.—*F. A. M. Cowan, by Dingwall, April 20. 1833.*

*Stirlingshire.*—The observations which, you say, your correspondent Mr. C. has made, respecting the effects which have been produced by the *Encyc. of Architecture* in Perthshire, are, I have no doubt, quite correct: I see many such symptoms here of your labours having fructified. I was lately at the Stirling cattle show, and I observed along the road, that, wherever there was a new cottage or villa in progress, something had been borrowed from your stores.—*J. R. Edinburgh, Oct. 30. 1833.*

#### IRELAND.

We have noticed in the *Gardener's Magazine*, vol. x. p. 62., some of the favourable reports which we have received of the influence of our *Encyclopædia of Architecture* in Ireland; which we can easily credit, considering the number of copies which, our publishers inform us, have been sent to that country. Notwithstanding disturbances which prevail in many parts of Ireland, the country is, on the whole, steadily improving. We trust to our excellent correspondent, Mr. Mallet, for notices of what is going forward, in Dublin, in those departments which concern this Magazine.

*Dublin, March 10. 1834.*—I have very little architectural news to send you from this place. Your friend Mr. Mallet is, I believe, very busily engaged in making experiments on bricks, stones, &c., relative to their cohesive power before and after calcination. He has also erected three of the largest water wheels in the British dominions. They are all above 50 ft. in diameter, and are connected with an immense train of mining machinery. He is now, I believe, about to erect an enormous windmill, with a tower 120 ft. high, and sails 100 ft. in diameter, for the purpose of crushing and preparing copper ore.—*T. T.*



ART. IV. *Retrospective Criticism.*

*THE Architectural Magazine* has disappointed me in not containing any thing respecting bridges, locks, docks, or those branches of architecture pertaining to canals, bridges, railways, &c., which have, for a number of years, gone under the name of engineering. If you do introduce articles on these subjects, I entreat of you never, in them, or in any other, give any calculations exclusively algebraic. If you do introduce formulæ of this description, let me recommend you, in all cases, to translate them into decimal arithmetic; for this has always to be done by the architect, or engineer, before the subject can be understood by practical men.—*An Architect. Sheffield, March 4. 1834.* Our correspondent has anticipated our views on this subject: we intend to translate all passages that we may introduce in foreign languages, as in the *Gard. Mag.*, and *Mag. Nat. Hist.*, and to explain all terms, technical or algebraic, as in the *Encyc. of Arch.*—*Cond.*

*Biography of Architects.*—There is one subject, which is not noticed in your prospectus, which, I think, would occasionally form a most appropriate and valuable portion of the Magazine; namely, the biography of eminent architects, &c., in all ages: nothing, I should think, would be more likely to excite that emulation, in ardent breasts, which is the sure forerunner of excellence. If I wanted to excite architectural enthusiasm in a man utterly alien to it, I conceive it could not be done more powerfully than by bringing him into St. Paul's, and pointing out to him, on the screen of the chancel—"Subtus conditor hujus ecclesiæ et urbis conditor, *Ch. Wren*, qui vixit annos ultra nonaginta non sibi sed bono publico. Lector, si monumentum quæris, circumspice."\* I know not whether I have quoted right or not, for I quote from memory alone.—*R. M. Capel Street, Dublin, March 5. 1834.*

*Position of the Dining-room.*—Sir, I have observed that in several of the plans for farm-houses, and small villas, in your *Encyc. of Cott. Arch.*, the dining-room is farther from the kitchen than the drawing-room. This is very badly contrived; for both comfort and convenience dictate exactly the opposite arrangement.—*T. W. Jan. 1833.*

*Sideboards or Shelves of Marble or Slate,* I can tell, from my own experience, are very fatal to glass ware; as, from the habit of setting down glasses with a certain degree of force on a wooden table, many are broken in doing so on a stone one, till servants get accustomed to setting down glasses in a more gentle manner, as the waiters do in the coffee-houses of France and Italy.—*R. S. Edinburgh, March 5. 1834.*

*Roller Blinds, &c.*—In your *Encyc. of Cott. Arch.*, when speaking of roller blinds, § 673., you do not mention that the rollers are now usually made octagonal, or at least angular, instead of round.—*T. W. Jan. 1833.*

*Buchanan's Gate.* (See § 828. of *Encyc. of Cott. Arch.*)—A field gate only 7 ft. 4 in. wide! I wish the inventor of it would teach Yorkshire carters how to drive. A gate 10 ft. wide is too narrow for them. It is a pity, as this gate is a very pretty one.—*T. W. Banks, near Barnsley, Yorkshire, Jan. 10. 1833.*

ART. V. *Queries and Answers.*

*THE Greek Cross.*—In § 696. of the *Encyc. of Cott. Arch.*, a Greek cross is mentioned: what is the difference between this and a common or Latin cross?—*W. T. March 16. 1834.*

A Greek cross is one in which the limbs are of equal lengths, and at right

\* Underneath lies the architect of this church and city, *Christopher Wren*; who lived upwards of ninety years, not for himself but for the public good. Reader, if you seek his monument, look around.

angles; a Latin cross has the upright limb much longer than the transverse one; and a St. Andrew's cross resembles the letter X. — *J. W. L.*

*Patent Lever Flooring Cramp.* — Can you, or any of your readers, give me a description of this instrument? I saw it a few years back in the National Repository, and thought it seemed a very useful invention. — *T. W. Barnsley, Yorkshire.*

*Ash-pans and Hearths.* — Would it not be a good plan to have ash-pans, or the part of the hearth under the grate, slope backwards, so as to throw the ashes as far back as possible? Tredgold recommends some things of the kind in his treatise *On Warming and Ventilating, &c.* — *Id.*

*Towel Stands.* — Might not a towel stand be fixed on the top of the washing-stand, in the same manner as a rail is often affixed to sideboards? Where room is wanted, it would take up no additional space, and would protect the wall or paper. — *Id.*

*A Gothic Arch, of great Antiquity and Curiosity,* is said to have been discovered, in the crypt of the cathedral at Armagh, by that eminent Gothic architect, Mr. Cottingham. Has any account of it been published, and where? Will you oblige your readers by a notice of it? A general impression rests on my mind that the cathedral at Armagh was either rebuilt or repaired by the father of the learned Mr. Ensor, now a resident in the neighbourhood of that city; but perhaps I am mistaken. I should be glad if some of your correspondents would set me right. — *Investigator. Glasgow, March, 1834.*

We have applied to Mr. Cottingham respecting the arch at Armagh, and hope to be able to give some account of it in our next Number. — *Cond.*

*Street Architecture.* — Which is in best taste, the mode of treating street houses singly, as in Oxford Street, or collectively, in elevations embracing several fronts, as in Regent Street? I recommend this subject, as a most important one, for discussion in your Magazine. — *B. London, March, 1834.*

#### ART. VI. Obituary.

*DIED*, lately, at Milan, the *Marquis of Cagnola*, a celebrated architect in that city. To this distinguished artist we owe, unquestionably, the most remarkable architectural monument of the present age. We allude to the triumphal arch which, at the end of the road over the Simplon, forms the entrance to the town of Milan. This arch, admirably adapted from the antique, is, from the elegance of its proportions, the purity of its form, the merit of its execution, and the richness of its materials, far superior to anything else which we possess of the same kind. Destined by Napoleon to serve as a memorial of his triumphs in Italy, it has, of course, changed its object since Milan has been under the Austrian government. Its execution was, indeed, long delayed; but its author had the pleasure of living long enough to see it finished, and to know that he left behind an admirable work to bear witness of his architectural skill.

The following anecdote will show the enthusiasm which the Marquis of Cagnola felt for his art. Some years ago he came by inheritance into the possession of a very considerable fortune; and, satisfied with the competence which he had obtained by his profession, he devoted the whole of the fortune to which he had then succeeded to the construction of a villa, of which he had conceived the project many years before. In this villa he has endeavoured to realise all that luxury and good taste could imagine of perfection for such a species of residence. This work, which offered a wide scope to his imagination, occupied him so completely, that there is reason to fear it shortened his life.

Independently of the fortune that the Marquis of Cagnola acquired by his professional labours, he obtained several titles and dignities. He was made chamberlain of the Emperor of Austria, and Chevalier of the Iron Crown. (*La Propriété*, vol. ii. p. 138.)